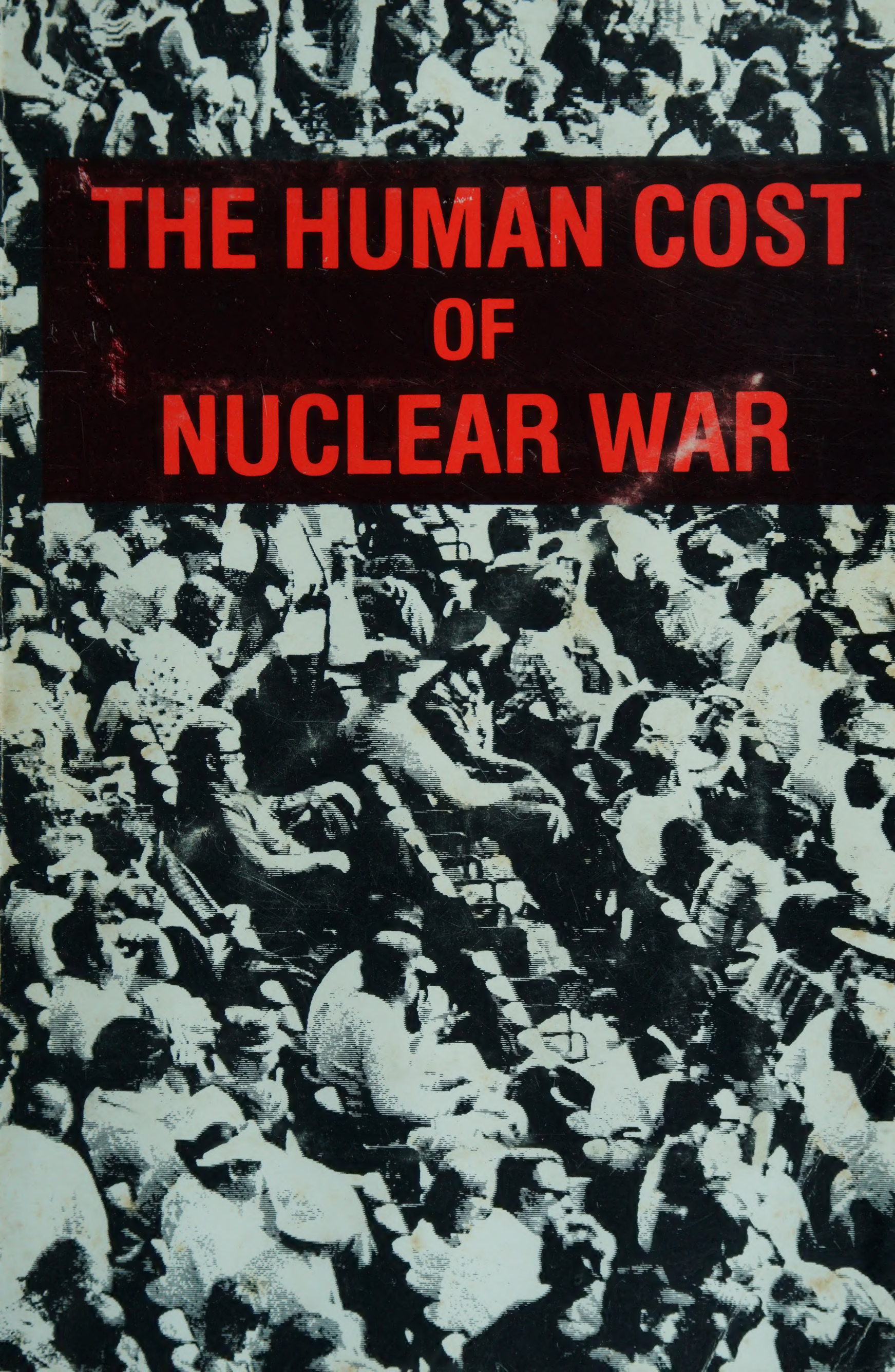

THE HUMAN COST OF NUCLEAR WAR

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THE HUMAN COST OF NUCLEAR WAR

COMMUNITY HEALTH CELL
47/1, (First Floor), St. Marks Road,
Bangalore - 560 001.

edited by

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Preface

The Final Document of the First Special Session on Disarmament of the United Nations General Assembly in 1978, signed on behalf of 149 nations including our own, contained the following words:- "Removing the threat of a world war - a nuclear war - is the most acute and urgent task of the present day. Mankind is confronted with a choice:- we must halt the arms race and proceed to disarmament or face annihilation."

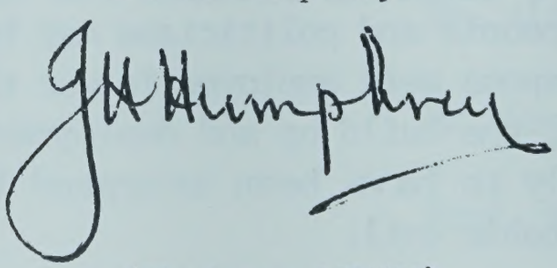
Since then, despite talks about disarmament and a second special session on Disarmament at the U.N. last year, sales of arms throughout the world have continued to increase and nuclear weapons to proliferate. These weapons are stated, by NATO and the Warsaw Pact powers, to be necessary for national security. Yet a recent opinion poll (in 26 countries) indicated that about half of those polled thought that the chance of avoiding a nuclear war within the next ten years was no better than even, and another poll in Britain revealed that if a nuclear war occurred the great majority would not expect to survive. This might be interpreted as showing that most people were aware of the catastrophe that nuclear war would bring upon themselves and their civilization. Regardless of political party, they were telling their governments that nuclear weapons cannot be regarded as acceptable instruments of policy; that measures other than the threat of their use must be found to ease the tensions between the nuclear power blocs. Although ordinary people and politicians may be aware, when asked, that if nuclear weapons were employed in war the effects would be utterly disastrous, the build up and deployment of these weapons seems until recently to have been accepted by most people as a necessary or inevitable evil.

Until 1980 most medical men and women, and others in the health professions in Britain were also content to regard nuclear weapons as remote matters of politics outside their professional concerns. However in that year several events forced the realization that the danger of nuclear war was not so remote after all. These included the failure to ratify SALT II; open discussion of the option for NATO to use battlefield nuclear weapons in Europe to counter a Soviet attack with conventional weapons, and of the possibility of fighting and winning a nuclear war; the decision to

replace Polaris with Trident submarines, and to base Cruise and Pershing II missiles in Britain; the widely publicized NATO exercise Operation Square Leg, involving a hypothetical 200 megaton attack on Britain; the emphasis on the need for civil defence against a nuclear attack; the publication of the government booklet "Protect and Survive"; and perhaps more than anything else the revelation of plans drawn up by the DHSS for provision of medical care in the event of a nuclear attack.

Having realized that the danger was very real, and that they would have responsibility for picking up the pieces if the worst happened, physicians and their colleagues first in the USA and then in Britain and subsequently in other countries have formed organizations to bring this realization home. The aims of three of these organizations are described in this book. The two in Britain, the Medical Campaign Against Nuclear Weapons (MCANW) and the Medical Association for the Prevention of War (MAPW) which work closely together decided among other activities to hold a series of symposia at which the medical and related aspects of nuclear war could be explained to and discussed with the profession and the public. The Cardiff Symposium was the first of these. It was organized by members of the Cardiff Group of MCANW, and to them, especially to Dr. Stephen Farrow and Alexandra Chown, I wish to express our gratitude for its success.

J. H. Humphrey.



(Chairman MCANW)

Biographical Notes of Contents

Sir Douglas Black

President of the Royal College of Physicians. After a lifetime contribution to the understanding and treatment of kidney diseases he has been author of papers and Reports on a variety of important medical topics. His most recent contribution has been The Black Report on "Inequality and Health".

Professor Jack Boag

Emeritus Professor of Physics as Applied to Medicine, University of London. For over 30 years he has worked in the field of radiation and has a special interest in cancer.

Dr. Stewart Britten

Child Psychiatrist, University College Hospital, London. He is a professional member of the Society of Analytic Psychology. He is author of several papers on the assessment of risk in relation to nuclear war.

Dr. Eric Chivian

Staff Psychiatrist, Massachusetts Institute of Technology. In 1978 together with Dr. Helen Caldicott he re-established the Physicians for Social Responsibility in the United States and in 1980 was co-founder of the International Physicians for the Prevention of Nuclear War. He is principal editor of "Last Aid: The Medical Dimensions of Nuclear War."

Dr. June Crown

District Medical Officer, Bloomsbury Health Authority, London. With the re- organisation of the Health Service, Dr. Crown moved from Brent and Harrow to one of the busiest teaching districts in London. She carries overall responsibility for health planning, which includes major accidents, disasters and nuclear war.

Sir Richard Doll

Emeritus Professor of Medicine, University of Oxford. After a career which established the risks associated with smoking and lung cancer he is widely recognised as the leading epidemiologist in the United Kingdom. He is currently Warden of Green College Oxford and President of the Medical Association for the Prevention of War.

Dr. Roger Evans

Consultant in Accident and Emergency Medicine, South Glamorgan Health Authority. He has written a standard textbook on Emergency Medicine and is responsible, locally, for providing the medical services at the time of a major accident.

Dr. John Gleisner

Consultant Psychiatrist, North West Regional Health Authority. Dr. Gleisner has a professional interest in mistrust and fear and is currently working with a group of colleagues from the Eastern Block. He is co-author of Crucible of Despair - the effects of nuclear war.

Professor Peter Harper

Professor of Genetics, Welsh National School of Medicine. He specialises in counselling families to avoid inherited diseases. His main interest in recent years has been in nerve and endocrine diseases. As a result of his research and his clinical work there is new hope that the incidence of certain inherited diseases can be reduced in South Wales.

Professor Allan Jacobs

Professor of Haematology, Welsh National School of Medicine. Professor Jacobs is a member of the South Glamorgan Health Authority where he takes a special interest in health planning in relation to nuclear war. He is internationally known for his research and publications on diseases of the blood.

Rev. Bob Morgan

Leader of South Glamorgan County Council. He has been a major figure in the decision of Welsh Counties to declare themselves 'Nuclear Free'. In believing that individuals need more information about the medical consequences of nuclear war he is leader of the first County Council in the United Kingdom to decide to deliver a leaflet to every householder on nuclear weapons.

Professor Horst-Eberhard Richter

Director, Centre for Psychosomatic Medicine, Justus Leibig University, Giessen. Author of numerous papers on psychiatry and psychology for which in 1980 he was awarded the Theodor-Heuss Prize. His books include 'They all talked of Peace, 1981' and 'The Psychology of Peace 1982'. He is a member of the International Physicians for the Prevention of Nuclear War Working Group on the psychology of living under the threat of nuclear war.

Professor Alwyn Smith

President of the Faculty of Community Medicine. He has a distinguished career in academic epidemiology and social medicine and has maintained a close involvement in the wider health aspects of the community. The recent paper from the Faculty of Community Medicine describes in detail the responsibility of community physicians in advising health and local authorities in relation to the planning for nuclear war.

Mr. Michael Tempest

Consultant Plastic Surgeon to the Welsh Regional Plastic Surgery Centre, St. Lawrence Hospital, Chepstow. Clinical Teacher in Plastic Surgery, Welsh National School of Medicine. He has been involved in the Medical Association for the Prevention of War since its foundation and was responsible for publishing, as early as 1952, the leaflet 'Modern War, its Medical, Social and Ethical Implications.' He is a leading expert in the treatment of burns.

Dr. James Thompson

Senior Lecturer, Department of Academic Psychiatry, Middlesex Hospital Medical School. Clinical Psychologist and Registrar to the British Psychological Society. His research interests have included the problems of brain damaged children and communication in medicine. A founder member of Psychologists for Peace he has lectured widely on human error and accidents associated with fatigue and other factors.

INTRODUCTION

This book is based on the Conference of the same name that was held in the St. David's Hall Cardiff, on January 21st 1983. The Conference was attended by over one thousand people. Although predominantly a medical audience, there were many other professional groups represented as well as individual members of the public. The Conference itself focussed on four issues which are of great concern in the current debate on nuclear weapons.

The first, chaired by Sir Richard Doll, was The Medical Consequences of Nuclear War and this was developed in great detail regarding radiation effects on individuals as well as the ecosystem.

The second session concentrated on Health Planning and provided an opportunity for the official launch of the Local Authority document to be delivered to every local householder explaining the limitations of existing civil defence measures. The inability of the Health Service to respond to the post attack situation was further emphasised with contributions from a community physician, a casualty consultant and a plastic surgeon.

In the third session on the Threat and The Reality of Nuclear War the risks were described in startling detail. These concepts of increasing risks were not accepted by the Foreign and Commonwealth Office who had prepared a special document for the Conference. This extraordinary paper, with their own assessment of risk, totally failed to address the question of human fallibility. The mental state of those with ultimate responsibility for nuclear weapons is, perhaps, the risk factor of greatest concern. The threat of nuclear war was shown to have a damaging effect on people of all ages, particularly on children, who were being robbed of their belief in a future. The final session, chaired by Douglas Black, discussed The Responsibility of Doctors to become involved in the nuclear debate. In addition to the twelve papers that make up the body of the book there are brief summaries of the discussions which took place around specific themes. The Conference culminated in a special workshop to develop a research agenda in the field of psychological aspects of nuclear war.

This was the first of three Conferences made possible by a grant from the Joseph Rowntree Social Services Trust. They have been jointly organised by the Medical Campaign Against Nuclear Weapons

and the Medical Association for the Prevention of War. A brief description of the aims and objectives of these two Organisations follows together with those of the International Physicians for the Prevention of Nuclear War.

MEDICAL CAMPAIGN AGAINST NUCLEAR WEAPONS (MCANW)

The Medical Campaign Against Nuclear Weapons, established in 1980, is an association of doctors, nurses and members of the other health care professions. We believe that the only sane attitude towards nuclear war is to work to ensure its prevention.

Our aims are to alert our colleagues to the disastrous consequences of a war fought with nuclear weapons, and, through them, to inform the policy makers and the general public. To achieve these aims we need to:-

* keep under review information on the health implications of nuclear weapons, nuclear war and related subjects

* act as a reference agency and a source of information on these matters

* provide information by lectures, publications and other means to the medical and related professions and to the public

* work with the medical and health professions in all countries towards our aims

Doctors and their colleagues in the health service have a particularly important role to play for several reasons:-

* they have an ethical responsibility for the health of their patients and their community

* they have access to specialised information which is needed to understand the likely consequences of a nuclear attack

* they have a respected role as health advisers

* they are accustomed to dealing with issues which transcend national boundaries and political differences.

In opposing the nuclear arms race the contribution of health professionals is unique since their only vested interest is that of protecting human life.

Increased technological sophistication has led to a shift from deterrence, the 'mutual suicide pact', to the expectation of fighting, and possibly winning, a 'limited' nuclear war. The previously unthinkable becomes an apparently rational option.

Today the stockpile of nuclear weapons around the world is such that if only 4% were used, most of the northern hemisphere could be destroyed. In Word War II, the equivalent of 3 million tons of TNT were expended, and over 40 million people died.
The current world arsenals contain the equivalent of 16,000 million tons of TNT: enough to kill every man, woman and child many times over. And still the arms race continues. Already 6 countries have nuclear weapons. It is estimated that a further 10-20 nations will become nuclear powers during the 1980's.

Medical and civil defence planning cannot protect the population from a direct nuclear attack. Such measures may even appear provocative to a potential aggressor, and may offer false reassurance to those at risk. The effects of blast, heat and radiation would cause such devastation, death and injury that any remaining health service resources would be overwhelmed. The blast and heat effects would kill and injure those in shelters, especially the make-shift shelters which are all that would be available to most people. The damage to buildings would leave many more vulnerable to fall-out effects, and to exposure. The only choice is to prevent nuclear war.

Preventive medicine has achieved enormous improvements in health and well- being. Smallpox is eradicated and other infectious diseases are controlled. The emphasis is now on helping individuals to choose a healthy lifestyle. The scope of preventive medicine must be expanded to encompass the threat of nuclear war - perhaps "the final epidemic".

We have 3,000 active members; the majority of these are doctors, including many eminent members of the medical profession, but representatives of numerous other branches of the health care community have also joined. MCANW is co-ordinated from a central office in Cambridge with one full-time and two part-time staff, and encompasses 50 local branches all around the UK.

MEDICAL ASSOCIATION FOR THE PREVENTION OF WAR (MAPW)

The Medical Association for the Prevention of War was founded in 1951, to unite the medical profession in efforts to prevent war. At a meeting at the Royal College of Surgeons in that year, it set out its aims, which remain as relevant in 1983 as they were over thirty years ago.

1. To consider and formulate the ethical responsibilities of doctors in relation to war.

2. To study the causes and results of war.

3. To examine the psychological mechanisms by which people are conditioned to accept war as a necessity.

4. To oppose the use of medical science for any purpose other than the prevention and relief of suffering.

5. To urge that the energies and money spent in preparation for war against man be diverted into the fight against disease and malnutrition.

6. To seek the co-operation of all doctors, in all countries, having the same aims.

In 1980 the Association extended full membership to all interested members of the health care professions and medical students; associate membership is open to all other individuals who would like to become Friends of the Association.

The activities of the Association have been recorded, first in the Bulletin and now in the Proceedings of MAPW. Studies on the long-and short-term effects of the nuclear bomb in Japan, of the dangers of stockpiling and testing nuclear weapons, and on the use and dangers of bacteriological warfare have appeared, together

with studies on the psychology of conflict and the origin of violence in society. In the last few years two subjects have dominated the Association'sactivities: firstly, the nuclear threat, and secondly, the intimate relationship between expenditure on arms, and lack of expenditure on health and social development, particularly in the Third World.

This Association works closely with IPPNW, and the MCANW in the U.K., to inform of the medical consequences of nuclear weapons, believing that a fully informed public can ensure that rational decisions on Arms Control are made and implemented. The Association's studies on the economic consequences of the armsarms race offer further powerful arguments for arms reduction.

INTERNATIONAL PHYSICIANS FOR THE PREVENTION OF NUCLEAR WAR (IPPNW)

IPPNW owes its origins to the concern of a group of eminent physicians in Boston (USA) about the growing danger of a nuclear war and the apparent unawareness among the public, politicians and their medical colleagues of how disastrous would be the medical consequences of any foreseeable nuclear war. But an important second factor was the personal friendship between the leader of the Boston physicians, Dr. Bernard Lown, Professor of Cardiology at Harvard School of Public Health, and Evgueni I. Chazov, Director General of the National Cardiological Research Centre, USSR Academy of Medical Sciences and personal physician to President Brezhnev. In July 1979 Lown wrote to Chazov in Moscow suggesting that a conference of Soviet, Japanese and USA physicians, organized to discuss the foreseeable medical consequences of the nuclear arms race, would help to arouse world public opinion and increase pressure for genuine disarmament. Chazov replied on October 1979, agreeing to discuss the holding of such a Conference, and adding

"You are right, the medical profession should more actively protest against the senseless policy of increasing arsenals of thermonuclear arms. We should use all the potentials to mobilize public opinion against this policy which is anti-humane in its essence and aims. I completely share your point of view that physicians have no right to stand aloof and remain silent facing the challenge to commonsense and moral principles."

In June 1980 The Boston physicians set up IPPNW as an Incorporated body with a Board of Directors and able to raise funds for the Conference. The topics to be addressed, the main speakers and the participants were agreed between the Co-presidents Lown and Chazov. Background papers were prepared, and the First Congress of International Physicians for the Prevention of Nuclear War took place at Airlie, Virginia, March 20-24, 1981. There were 73 formal delegates, all rather eminent, from 11 countries including 13 from the U.S.S.R. By the end of the Congress agreed statements had been prepared by working groups on the predictable and unpredictable effects of nuclear war, on the inability of surviving physicians to cope with the medical consequences, on the social, economic and psychological cost of the nuclear arms race, and appeals were addressed to Presidents Reagan and Brezhnev, to the United Nations and to fellow physicians throughout the world. These received wide publicity through the media in the USSR and the USA (where the report of the Congress was read into the Congressional Records), and it is generally acknowledged that IPPNW, both by its respectability and by demonstrating that its message (based on a common concern for health and shared ethical values) could be heard both in the East and in the West, was an important spur to the growth of the peace movement in the USA.

The small British delegation suggested that the Second Congress sould be held in Cambridge, and hosted by the M.C.A.N.W. This was agreed and the Congress took place in april 1982, under the joint chairmanship of Sir Douglas Black, Prof. Bernard Lown and Prof. N. Blokhin, President of the Soviet Academy of Medical Sciences. This time almost 200 physicians, other experts and observers from 31 countries spent 4 days in discussion of themes similar to those of the First Congress but in the general context of a nuclear war in Europe. The standard ofdiscussion was high, and the agreed conclusions much as before, but the publicity which they received was overshadowed by the Falkland Islands Crisis. They were however put forward later by special invitation at the Special Session on Disarmament of the United Nations Assembly in New York.

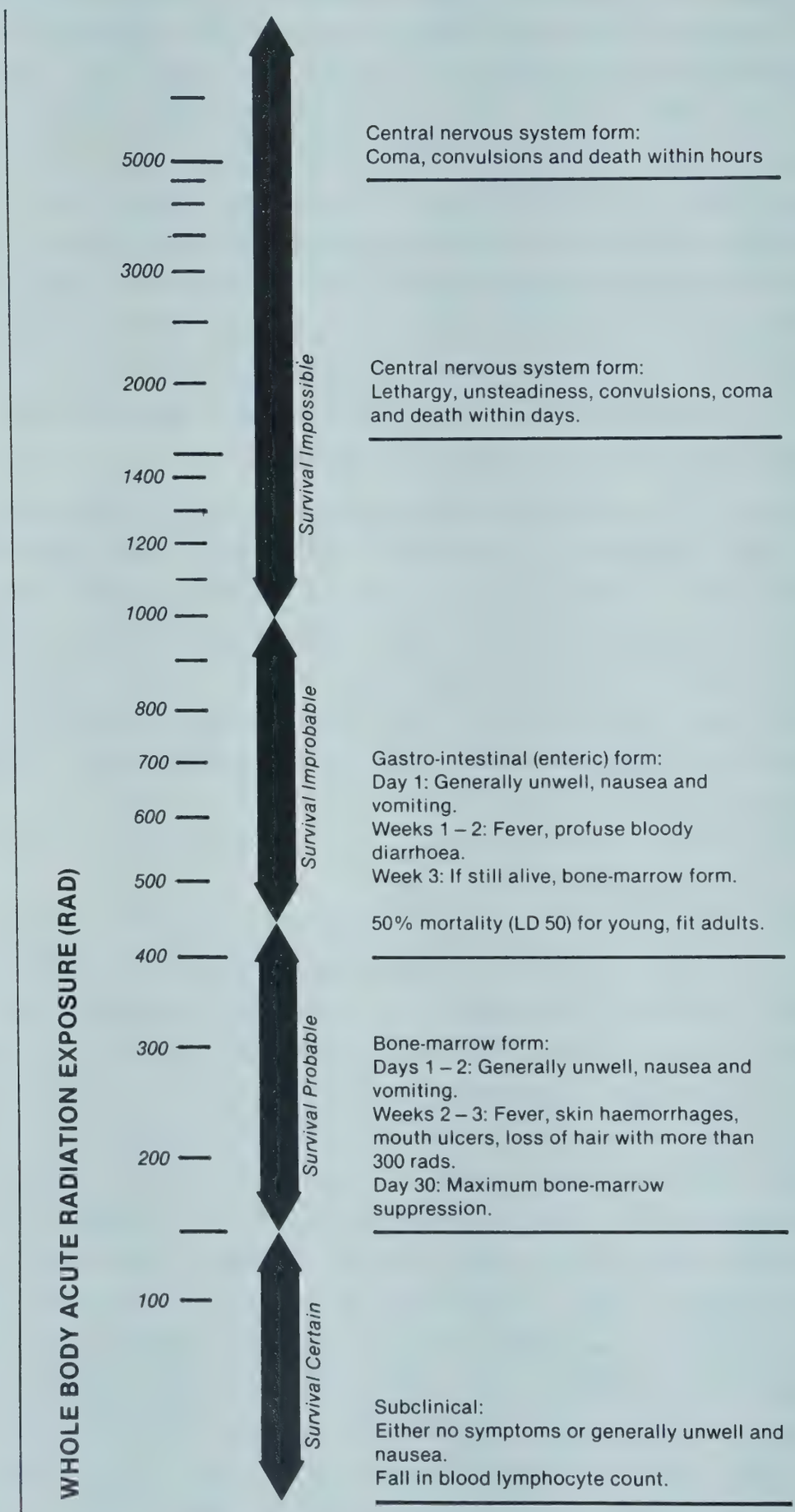
A new feature of the Second Congress was that there now existed physicians' movements in many countries (including some in East Europe besides the USSR) and a growing awareness among medical students. One of the workshops considered how IPPNW, which is well respected internationally and has Non-Governmental

Organisation status at the United Nations and at the World-Health Organization, could assist these movements. It was decided that a new draft Constitution should be discussed at a specially convened meeting attended by representatives of the national physicians' bodies. This took place in October 1982 at The Hague, and there it was agreed that after the Third IPPNW Congress (to be held in Amsterdam, June 1983) IPPNW should become a federation of medical organisations for the development and dissemination of knowledge and undertaking appropriate activities relevant to the prevention of nuclear war, especially where co- operation with or representations to international organizations is concerned. It will be an organization like none other except the Pugwash Continuing Conference on World Affairs.

On June 26th 1982 an unscripted discussion was broadcast on Soviet National Television. It was re-broadcast on June 30th. The discussion went on for an hour, and some 100 million viewers are estimated to have watched it. The Participants were Bernard Lown, James Muller and John Pastore from Boston and Evgueni Chazov, Mikail Kuzin and Leonid Ilyin from Moscow, all members of IPPNW. The occasion of their presence was an International Congress of Cardiology in Moscow.

In his opening remarks Dr Lown said

"Among the six of us sitting around this table there has grown a deep bond of enduring friendship, because we know that we need each other to help contribute to the prevention of death and destruction of our families, our children, our culture, our countries, the very civilization of our little planet - everything that a human being holds dear. The multiplying stockpiles of nuclear weapons with ever-increasing destructiveness threaten us all with an unimaginable catastrophe. We are held hostage by an accelerating arms race; a war without winners that endangers not only our survival but the very fragile ecology of our plant. Physicians' activities are compelled by the conviction that nuclear war is the number one health problem in the world today, facing us all, and perhaps constitutes the final epidemic for which the only remedy is prevention...."



Types of radiation sickness.

MEDICAL CONSEQUENCES

OF

NUCLEAR WAR

MEDICAL CONSEQUENCES OF NUCLEAR WEAPONS

OVERVIEW

Professor Allan Jacobs

There is now a considerable amount of objective data regarding the effects of nuclear weapons. Much of this is derived from detailed studies of the first three atomic bombs exploded in 1945, one at the US testing ground in New Mexico and two which were dropped on Hiroshima and Nagasaki in the same year. The physical, medical and social effects of the Japanese atomic bombings, together with their long term consequences, have recently been collated (1). The United Nations Report on nuclear weapons, submitted to the General Assembly in 1980, points out that the great powers between them now hold the equivalent of over one million Hiroshima bombs, or the equivalent of over three tons of TNT for every man, woman and child on earth. It concludes that no target is strong enough to resist the intense effects of nuclear weapons and that no effective defence is possible against a determined attack (2).

The number of casualties likely to be sustained after a nuclear attack clearly depends on its severity and environmental conditions at the time. One of the earlier attempts to calculate the human cost of such an event appeared in a series of special articles in the New England Journal of Medicine, May 1962. In a postulated 56 megaton attack on the State of Massachusetts it was estimated that in the Boston metropolitan area, with a population of 2.8 million, over 1 million would be killed on the first day and over 1 million fatally injured. Only approximately a quarter of a million people (about one tenth of the population) would remain uninjured. Of the 6,500 physicians in the area only 640 would remain uninjured. In the post-attack situation it was estimated that there would be a ratio of between 1 and 2,000 acutely injured persons per uninjured physician (3). More detailed scenarios have been published since and the Report of the Office of Technology Assessment (O.T.A.) to the US Congress (4) summarises the range of possibilities, from an attack on a single city such as Detroit or Leningrad, yeilding up to 2 million immediate deaths, to an all out attack on a range of military and

economic targets, yeilding up to 160 million immediate deaths. Rotblat (5) has shown that taking the worst case described by the O.T.A, the immediate and long term casualties could be estimated as shown in table 1.

TABLE 1.

Possible total casualties in an exchange of 7800 megatons between the USA and the USSR (OTA scenario, 1980 (4))

	In the combatant countries (millions)	In other countries (millions)
Immediate casualties		
Number of deaths	265	
Number of injured	133	
Long-term casualties		
Cancer deaths	14.8	9
Thyroid cancers	7.5	3.2
Thyroid nodules	10.9	9.5
Abortions	14	5
Other genetic effects	21.5	15

During the 1982 Conference of the International Physicians for the Prevention of Nuclear War (IPPNW) a detailed workshop study of medical problems in the post-attack situation, assuming "limited" nuclear war in Europe, showed that early casualties after an exchange of 1000 one megaton weapons would be approximately 170 million dead and 150 million injured. These weapons would, of course, be only a fraction of the total nuclear weapons available. It was concluded that there could be no effective medical response in the event of a nuclear war involving Europe. It is relevant that in a joint discussion at this conference senior military experts of the USA, USSR and UK there was full agreement that if nuclear weapons were used a limited war was extremely improbable. An extrapolation of these calculations to the City of Cardiff indicates that if a 1 megaton bomb were to explode over the city centre it is unlikely that any buildings would remain standing, or that there would be any survivors within the city boundary. The immediate effects of blast would extend as far as Newport in the east and Cowbridge in the west.

The official response to the problem of dealing with the aftermath of a nuclear attack has not been entirely consistent. In the booklet "Protect and Survive" published in 1980, (6) the public is

advised on how to make their home and their family as safe as possible. There are detailed instructions for preparing a fall-out room, together with suggestions for clearing out old newspapers because of the danger of fire and an illustration of how to put out a fire with a bucket of water. It is suggested that if you hear a fall-out warning you should stay inside your refuge until government radio issues instructions. "The dangers will be so intense that you may all need to stay inside your inner refuge in the fall- out room for at least 48 hours." The final instruction is that on hearing the All Clear there is no longer an immediate danger from air attack and fall-out and you may resume normal activites. There is some divergence between these somewhat loosely worded instructions issued to the public and the Home Defence Circular (7) issued to Health Authorities and Community Health Councils. This document anticipates the possible suspension of Community Health Council Activities, and states, amongst a mass of detail that:-

1. no part of the country could expect to avoid the effects of an attack.

2. general life saving operations in areas of fall-out might not be possible until days or even weeks after a nuclear attack.

3. the number of casualties might be quite beyond the resources of existing Health Services.

4. trained health service staff would be vital for the future and should not be wasted by allowing them to enter areas of high contamination where casualties would, in any case, have small chance of long-term recovery.

5. in high casualty areas no arrangement for the deployment of ambulances could deal adequately with the numbers involved. The immediate collection and transport of casualties would be a matter for the public themselves.

6. there is no specific treatment for radiation injury, although spontaneous recovery may be assisted by good nursing.

It is clear that official policy is to recognise the virtual impossibility of dealing with the victims of nuclear attack and to conserve any surviving staff for the rebuilding of health services in a post-nuclear society, though no detailed picture of this society is given. This policy seems to agree entirely with the statement of the IPPNW that there can be no effective medical preparation for nuclear war, since the extent of the devastation would overwhelm the medical services.

Long term follow up of survivors of the Hiroshima and Nagasaki explosions showed that many of these had a high incidence of genetic defects, cancers, leukaemia, and other blood conditions, often appearing many years after radiation exposure. Non-specific abnormalities in the peripheral blood count were found in a number of population studies carried out in survivors two years after the explosions. In subsequent years this population showed an increased incidence of polycythaemia vera, idiopathic myelofibrosis, hypoplastic anaemia and leukaemia. The bone marrow is particularly susceptible to radiation damage and during the 24 years following an acute exposure to 200+ rads survivors had a risk of haemotological disease five times that of a of population studies carried out in survivors two years after the explosions. In subsequent years this population showed an increased incidence of polycythaemia vera, idiopathic myelofibrosis, hypoplastic anaemia and leukaemia. The bone marrow is particularly susceptible to radiation damage and during the 24 years following an acute exposure to 200+ rads survivors had a risk of haemotological disease five times that of a control population and a risk of leukaemia approaching twenty times that of a control population. This compares with an overall risk of cancer of about twice that in the normal population. The incidence of leukaemia in radiation victims is dose- related. In Hiroshima the incidence of leukaemia in those survivors who were within 1 km of the hypocentre was 100 times greater than expected. In those who were 1 to 1.5 km from the hypocentre a 20 fold increase was found, whereas in those who were from 1.5 to 2km away there was only a two fold increase. The maximum incidence of leukaemia occured at about six years after radiation exposure but was still in excess of normal thirty years later. Those survivors exposed to excessive radiation in 1945 are now beginning to show an excess incidence of myelomatosis compared with their non-irradiated age matched controls.

It is clearly impossible to attempt an accurate prediction of the long- term sequelae of radiation exposure following a nuclear attack. The example presented to us by the use of a relatively small nuclear weapon at Hiroshima and Nagasaki is no cause for optimism.

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RADIATION EFFECTS

Professor Jack Boag

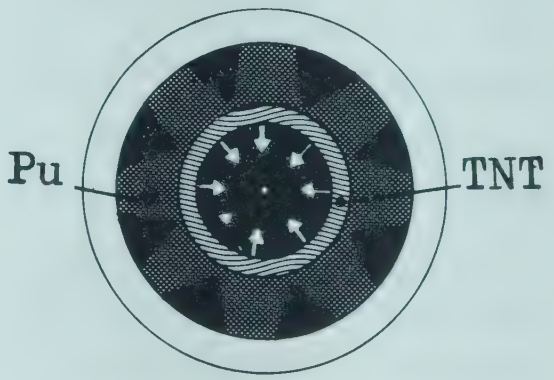
Before I talk about radiation specifically I should like to say something about the more general aspects of nuclear weapons and in particular the nature of these weapons. It is of some importance that one should understand why it is that the damage of Hiroshima and Nagasaki is now no measure, no adequate measure, of what could happen in a nuclear war.

The weapons used were extremely primitive in nature. On Hiroshima, the bomb, code named 'Thin Man', used a slug of uranium 235 which was fired along the barrel of the gun and exploded with thirteen and a half thousand tons of T.N.T. equivalent (Figure 1). The Nagasaki bomb, code named 'Fat Man, used a somewhat more sophisticated construction. Conventional explosives drove the plutonium into the centre of a hollow sphere, causing it to reach critical mass there and to explode with twenty two thousand tons force.

<u>Hiroshima</u>

The gun - "Thin Man"
Uranium 235 Fission
13 Kilotons TNT

<u>Nagasaki</u>



Implosion - "Fat Man"
Plutonium Fission
22 Kilotons TNT

Fig. 1

The misplaced ingenuity which led from these relatively simple devices to the thermo-nuclear weapon has removed any limitation on the size of the weapon. The thermo-nuclear weapon is a three stage device. At the top there is the trigger, which is a bomb of approximately the calibre of the Hiroshima bomb and depends upon

fission for its effect. When the trigger explodes it reaches temperatures of tens of millions of degrees centigrade. At that temperature the heat emission is not in the form of ordinary thermal radiation, nor in the form of ultra violet, but of shortwave length X-rays. The radiation is then reflected and diffused down to the lower part of the bomb which contains the fusion fuel, and the next part of the reaction depends not on fission but on the fusion of two hydrogen isotopes for its explosive power. The radiation compresses and at the same time heats and ignites the fusion fuel. That is the second stage and usually contributes half of the explosive power of these weapons. The whole thing is surrounded by a skin of ordinary uranium 238 - which is not spontaneously explosive itself, but can be made to go into fission by the very fast neutrons from the fusion explosion. This contributes the other half of the explosive power of a thermo-nuclear weapon and of course all the fall-out.

Now the sizes of these weapons can be as large as anyone wishes to make, as the two main explosives, namely the fusion fuel and the uranium 238 are by themselves harmless. They can be handled in any desired quantity, put together and they will not explode until triggered. A twelve ton railway wagon designed for carrying coal could equally well carry twelve tons of T.N.T. If the Hiroshima bomb, which was equivalent to thirteen thousand five hundred tons of T.N.T., were loaded onto railway wagons the train would stretch for four miles. The largest thermo-nuclear device so far exploded was the equivalent of fifty eight million tons of T.N.T. A train carrying that amount of T.N.T. would stretch right around the world at the latitude of London with three thousand miles overlap. This simple example helps one to understand the new dimension that modern nuclear weapons have brought to the old practice of warfare. Now if any of your friends, military or otherwise, say "Oh, but no one would ever make a hundred megaton bomb, it would be mad", the only answer is "The whole thing is mad". There is no guarantee at all that we shall not have even larger devices in the future, unless we stop them now.

One of the latest developments is the neutron bomb, which is in fact a thermo-nuclear weapon without the uranium shell around it. Instead of the additional fission explosion there is a spray of deadly fast neutrons and gamma rays from the fusion explosion. This produces a very penetrating radiation which is designed to kill personnel, rather than do damage to buildings.

When discussing such an emotive subject as nuclear war it is important to question the sources of the data. Practically all the figures quoted are from official United States documents, including 'The Effects of Nuclear Weapons' from the Department of Defence, 1977 (1) and more recently 'The Effects of Nuclear War' prepared by the Office of Technology Assessment for the United States Congress, 1980 (2).

In the sequence of events following a nuclear explosion there are four principal destructive effects (Figure 2).

1. Initial radiation

2. The fireball

3. The blastwave

4. Fallout

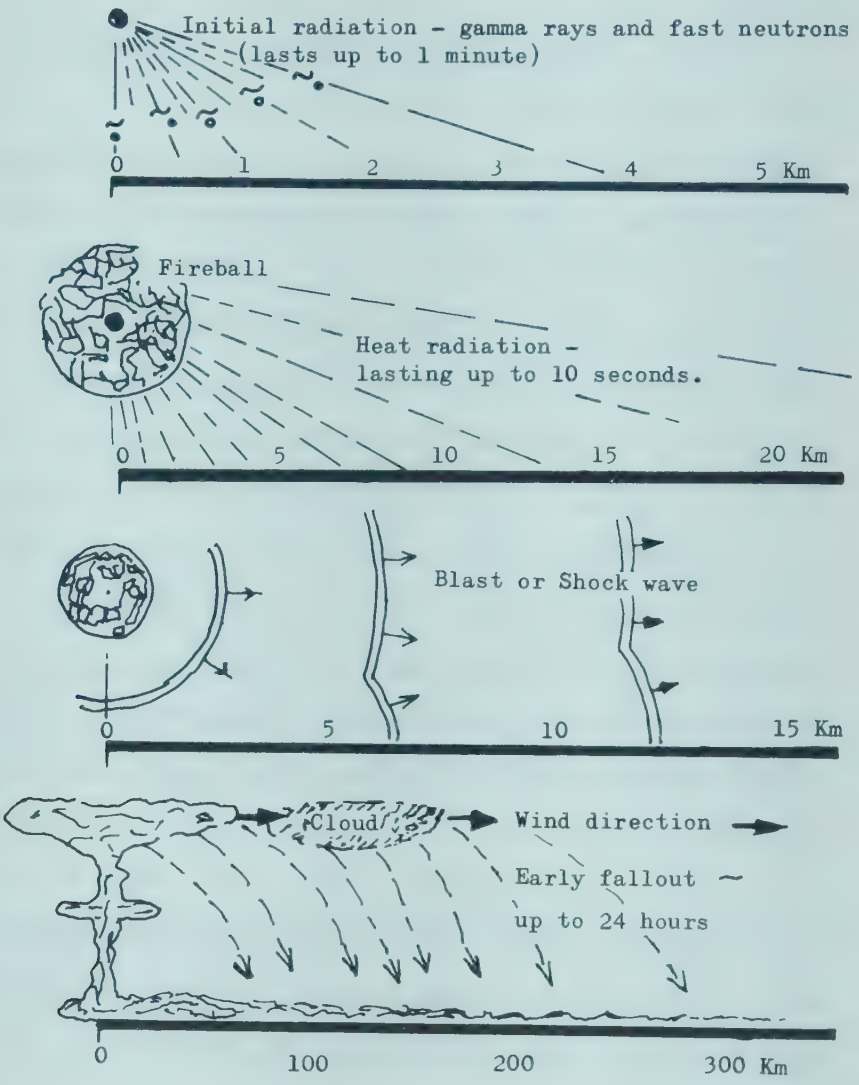


Fig. 2

The first of these is the initial radiation coming from the nuclear reactions that go on in the bomb. These are immediate and they take place in a small fraction of a second. This is followed by some gamma radiation from the fission products in the explosion cloud, until it has risen so high that they are absorbed in the air. That lasts perhaps a minute.

The next stage is the building of a fireball of incandescent air. The temperature reached in the core of an exploding weapon is tens of millions of degrees centigrade. The X-rays are absorbed in the

air and the air becomes incandescent. A one megaton weapon has a fireball of more than one mile in diameter. The surface is at a temperature higher than that of the sun.

The blast effect results from the blast wave which extends for many miles from a one megaton explosion. An overpressure of five pounds per square inch would be enough to demolish a house such as those found in the suburbs of many cities. Such a shock wave extends to four and a half miles from a one megaton explosion.

The residual radiation comes down as fallout from the explosion cloud. Fallout only occurs to any appreciable extent if the fireball touches the ground and picks up vast quantities of dirt and debris which subsequently condense encorporating the radioactivity from the bomb fragments and from the fission products. This debris then falls, the larger particles close to the explosion stem, the finer dust carried by winds hither and thither. One cannot readily predict the pattern of fallout, but one can predict the area covered by any given density of fallout. It may be patchy here and there but the total area can be calculated. Now the best known of these fallout patterns is the one which took place in March 1954 after the explosion of a fifteen megaton weapon on Bikini Atoll. It led to death and injuries to Japanese fishermen and injuries to many Marshall islanders. A great many observation points were in fact used for that explosion so one can plot out the area which fallout would cover.

The lethal dose level is around eight hundred rads, or eight gray, the new unit. Some would accept a lethal dose level of four and a half gray, which would be expected to kill fifty per cent of those exposed, but for this purpose eight gray will be used to be sure of not exaggerating the effect. The area covered by the eight gray contour at Bikini Atoll was three thousand, seven hundred square miles. Soon after this in 1956 the British Government issued a very slim pamphlet entitled 'Nuclear Weapons' (3). It showed the pattern of fallout from the Bikini test superimposed on the British Isles with the ground zero at Liverpool. The eight gray contour within which practically everyone in the open would have been killed extended nearly one hundred and fifty miles and presuming North Westerly winds would have reached Norfolk. The area of serious contamination extended two hundred and twenty

miles downwind and would have reached the Thames Estuary. It is of some interest that the original diagram has not been reproduced in any of the subsequent issues of this pamphlet. It is diffucult not to conclude that the public are very much less well served in this country than in the United States regarding information about nuclear weapons.

At ten o'clock on the morning following the attack on Nagasaki, parties of rescue workers entered the city. No such rescue squad could enter a devastated city in a nuclear war now. They would have to wait perhaps for a week, perhaps for two weeks. Whether they would be allowed to enter areas of high radiation is uncertain but even if they did, rescue would be impracticable.

Although the precise pattern of fallout cannot be accurately predicted, one approach is to consider average values. Calculations were made of the predicted fallout during the Civil Defence exercise 'Square Leg' in 1980 in which an attack on Britain was simulated involving 300 megatons of nuclear weapons on targets all over the country. If we assume that of the 300 megatons of explosive power, 100 megatons came from fission and that this was uniformly distributed over the land area of England and Wales, i.e. 58,340 sq. miles, we then come up with an average fallout density. From figure 3 it can be seen that the dose rate rises to a maximum as the blanket falls and then declines as the radioactivity decays. The rising line is the integrated dose and shows that a level of 5 gray would be reached in about 6 hours and 8 gray in about 8 hours. This would be the length of life of anyone in the open. They would, in fact, live for longer but they would have acquired a lethal dose in that time.

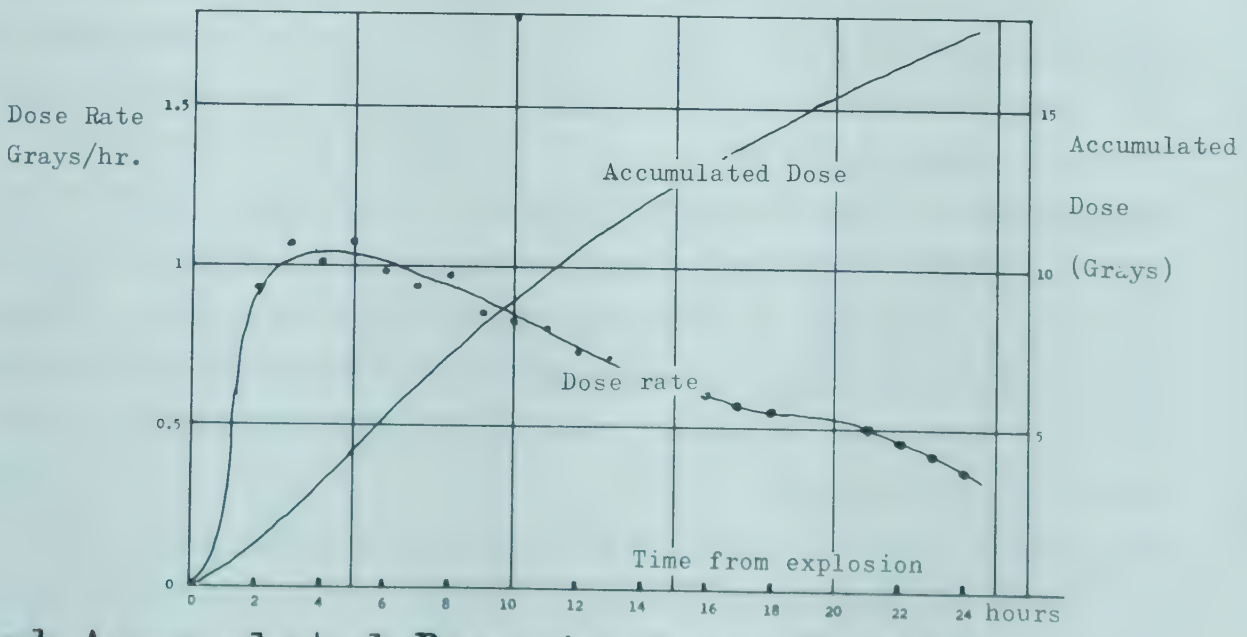


Fig 3

Dose Rate and Accumulated Dose in Grays During First 24 hours

Figure 4 shows the longer term decay from gamma rays over a period of one year. Even if one were in an adequate shelter for a period of two or three weeks, or even a month, when one emerged from that into an average fallout density one would still be committed to a subsequent dose, a so called dose commitment, of the order of 18 gray after two weeks and 12 gray after a month. Whether it would be lethal spread over many months is not known. The ratio of the dose rate in the open at one month to the permitted maximum dose rate in peace time is 15,000 : 1

Fig 4

DECAY OF THE EXTERNAL GAMMA-RAY HAZARD DUE TO THE AVERAGE FALLOUT FROM 100Mt OF FISSION EXPLODED OVER ENGLAND AND WALES.

	Time elapsed from instant of the explosion						
	24 hr	4 days	2 wks	1 mth	2 mths	6 mths	1 yr
Dose Accumulated in the open.	17	34	43	49	52	57	60 Gy
Protection factor to reduce shelter dose to 0.3Gy.			143	163	173	190	203
Residual dose commitment in the open.	44	27	18	12	9	3.4	1.2 Gy
Dose rate in the open.			0.5C	0.20	0.086	0.024	0.0038 Gy/day
Ratio to the permitted maximum in peacetime.			37,000	15,000	6,300	1800	280

The clinical effects of acute radiation exposure are well known. Nevertheless, the initial symptoms can easily be confused with ordinary shock of psychogenic origin. There is no way of telling, for example, whether the diarrhoea and vomiting which come on are due to simple shock or to radiation. It is at a later stage that the subcutaneous haemorrhages occur.

There have been further calculations of the long term world wide effects of multiple nuclear weapons explosions. The Report to the National Research Council of the United States (4) considered 10,000 megatons exchanged between opponents in the northern hemisphere. The distant fallout from that would be spread in a zone around the world and would give rise to about 3,000,000 cancers and about 2,000,000 genetic defects. I do not wish to underestimate these in any way but you will realise that they are a small fraction of the immediate deaths that such a war would involve, and one should not simply stress them because of their emotional appeal. Anyone who can take with equanimity hundreds of millions of deaths will not, I think, be put off by a few million genetic defects.

PHYSICIAL EFFECTS

The United States Report found that the most threatening of all the physical effects involved the possible depletion of the ozone layer. This lies around the world and screens us from the far ultra violet radiation coming from the sun. The oxides of nitrogen formed in these multiple explosions penetrating into the stratosphere could reduce the ozone blanket to a dangerous extent.

The Report emphasised that they could make no accurate calculations, but their best estimate was a reduction of about 50% gradually returning to normal over a period of about 8 years. During this time many of the ecological systems in the oceans and on the land would have died. Their estimates or error are plus or minus 20%. 70% would certainly be disastrous, 30% might be tolerable.

Another important physical effect which again was discovered by accident is the electromagnetic pulse which comes from the explosion of a single large nuclear weapon 200 miles, or perhaps 100 miles, above the earth's surface. The radiations going out strike the earth's atmosphere and there they give rise by a complex process to an electromagnetic pulse similar to, but very much larger than, a lightning flash, and this can put out of operation communications equipment continent wide. A single weapon can put out of operation the apparatus for 1,000 miles radius. Indeed, what it did in the first case following an atomic test, was to put out the street lights in Hawaii 780 miles away. This high altitude explosion, 100 miles above Johnson Island not only put out the street lights in Hawaii, but could be seen and indeed was photographed at this distance. The central core of the fireball was 180 miles in diameter. The outer rim glowing red with excited oxygen was 600 miles in diameter.

In closing with this image and by drawing attention to these physical phenomena it is important to be reminded that we are dealing with weapons with extraordinary powers of destruction. It is also a warning that we should not tamper with human life and the ecology of the planet in this way.

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GENETIC EFFECTS OF NUCLEAR WAR

Professor Peter Harper

The immediate consequences of a full scale nuclear war would be so devastating that it is reasonable to ask whether the long term effects would be noticed, let alone considered important by the survivors. However, even in the worst circumstances, there would undoubtedly be survivors who would reproduce, while in the event of a localised nuclear disaster, either military or civil, there would be large numbers of people exposed to non lethal doses of radiation for whom medical help would be available from surrounding areas, and who would in due course wish to know how their exposure would affect their future children. Also we must not forget that many people are being exposed to radiation now, in part as a result of nuclear testing, but largely for medical indications, both diagnostic and therapeutic, so that some of these questions already arise even if we manage to avoid nuclear war.

I am not a radiologist, but a physician and medical geneticist, responsible for genetic counselling and the diagnosis of genetic disorders; may I apologise to those scientists in the audience with much greater expertise in radiation genetics if I adopt a very basic approach. I should like to consider two questions:

1. What are the genetic risks to the offspring of a person exposed to the doses of radiation to be expected in the event of nuclear war or disaster?

2. What effects might there be on the population frequency of serious genetic disorders?

First though one must ask what evidence there is that radiation does indeed induce permanent genetic changes, and whether this evidence applies to man as well as to other species.

It can be said at once that the evidence for these effects is conclusive. Since the work of Muller almost 50 years ago an increase in genetic mutations has been shown, both in animals, such as the fruit fly and mouse, and in plants. Some of these are now known to result from visible abnormalities of the chromosomes,

others from changes in single genes, and in general their nature is similar to the spontaneous mutations which are occurring continually at a low level in every population.

Among the relevant facts to become clear from experimental studies are that a high dose of radiation at one time causes more damage than the same dose spead over a longer time at low level, and also that the ovum is especially sensitive to chromosomal damage in the days just before and after conception.

Some of the experimental work relating irradiation to genetic abnormalities in the mouse is now outlined. Much more detail is contained in the sources listed. In general two main approaches to the measurement of effects have been used: direct observation of the effects of a specific dose of irradiation, and the doubling dose; i.e: that dose required to produce twice the level of a specific effect that is normally seen in the population.

Among the mutations from the alteration of a single gene, dominantly inherited mutations have received particular attention, since they are visable in the first generation of offspring of an irradiated individual. Studies on mice have made extensive use of skeletal abnormalities, and it is clear from these that there is a close relationship with radiation dose; also that at low doses in particular, male germ gells are more sensitive than female. Radiation induced dominant mutations are not confined to those seen in liveborn animals; 'dominant lethals' can be detected by examination of the uteri of pregnant animals for the scars representing early developmental failure; these are also closely related to radiation dosage.

Sex-linked lethal disorders can be detected by changes in the sex ratio at birth. Since males only transmit their single X chromosome to their daughters, lethal mutations will show as a reduction in the proportion of females born. On the other hand, while females transmit their X chromosomes equally to offspring of both sexes, many harmful mutations will be recessively inherited and only affect sons, thus altering the sex ratio in the opposite direction. While autosomal dominant and sex-linked mutations give immediate effects, autosomal recessive mutations will remain silent unless transmitted in double dose, and a worrying possibility of human radiation effects is that this might allow a

serious build up of mutational load over many generations. In experimental animals this possibility can be tested using inbred colonies.

Visible chromosomal effects of irradiation may result in chromosomal abnormal offspring, and this has been extensively studied in mice. Not only is irradiation related to the occurrence of visibly abnormal germ cells, but the abnormality rate in offspring is increased for a variety of categories of numerical and structural chromosomal disorders, both of the sex chromosomes and the autosomes. Cellular studies can also be related to the mechanisms of DNA, repair, and in this respect it is relevant that radiosensitivity in both animal and human cells is under genetic control, with some cell lines considerably more radiosensitive than others, quite apart from the existence of genetic disorders affecting DNS which are characterised by radiosensitivity.

Taken as a whole, the abundant experimental evidence leaves no doubt as to the genetic effects of radiation in terms of both single gene and chromosome disorders. The essential similarity of the genetic material in all species makes it inevitable that these findings also apply to man, but transferring the data in the form of quantitative estimates of mutational effect in man is quite a different matter, and for this one ideally needs direct human evidence.

At present it has to be said that although such direct evidence does exist, it is only capable of giving an approximate guide, and that extrapolation to the situation of nuclear war is even more uncertain. In this respect the studies on the offspring of the Hiroshima and Nagasaki atomic explosions are highly relevant; they have been carried on for many years and provide an experiment which one must hope profoundly will never be repeated.

In the main the results of these studies are reassuring, for there has been no clear increase in infant or childhood mortality, nor in congenital malformation rate. Sex chromosome abnormalities may be somewhat increased, but not Downs syndrome. No increase in cancer has occurred amongst the next generation in contrast to the irradiated parents. Direct developmental effects on brain and body growth have been shown when the pregnancy had already

occurred, but these are not true genetic effects. Changes in the sex ratio along the lines shown in experimental animals were observed in the initial study, suggesting that in man, as in other species, a high proportion of the mutations result in early pregnancy loss.

The fact that these studies have not shown more dramatic genetic effects is reassuring, but their limitations must be stressed. Chromosome studies were not feasible in the early part of the work, documentation of early infant losses was probably incomplete, and the numbers studied could not be expected to give significant results for relatively rare genetic disorders. Nor will any long term effect from recessively inherited mutations be evident for many generations.

Other studies of radiation exposed individuals have been done and are continuing; some relate to occupationally or geographically exposed groups, some to diagnostic and therapeutic medical radiation, others relate particular disorders to the dose of parental exposure. At present the evidence is more convincing for chromosomal abnormalities than for the single gene disorders or for congenital malformations; it is liekly that in future it will prove possible here to relate dosage to abnormality risk. One series of studies arousing controversy has been of abnormalities in an area of high natural background radiation in India. Although an increase in chromosome disorders was initally reported, subsequent work does not suggest any difference from normals.

If we turn now to the risks for the individual pregnancy where there has been parental irradiation before conception, what advice can we give in the context of a nuclear war or more localised disaster?

Firstly there will be a very large number of individuals whose exposure is relatively low, probably not much more than diagnostic medical irradiation. Any increase in risk of serious abnormality here is minimal, and it is doubtful whether any special measures, such as amniocentesis or termination of pregnancy are justified.

At the other extreme are those with fatal radiation sickness, who would be unlikely to reproduce. In between though would be many

with high but not lethal exposure, perhaps equivalent to high dose medical therapeutic radiation, whose symptoms may be transient, and who may wish to bear children subsequently.

Here one might suggest in broad terms that conception should be avoided for the first few months (possibly 3-6) after exposure, and that amniocentesis to detect chromosomal abnormalities might be wise for those pregnancies that do occur at this stage. After this the risks are likely to be small and the need for amniocentesis or other tests more doubtful.

In attempting to estimate the population effects of genetic damage in a nuclear war, one is on very hazardous ground. The United Nations reports have made such estimates in terms of abnormalities per rad per million exposed individuals; a figure of around 60 is suggested for liveborn individuals, with chromosomal defects accounting for rather more than half. The total effect spread over many generations is estimated to be around three times as great. In contrast to the significant risks for individual pregnancies, this population increase would not be confined to the immediate site of the explosion, but would involve those much wider areas where radiation from fallout was increased, but did not cause immediate medical effects.

In conclusion it seems unlikely that the genetic effects at either the individual or the population level are going to rank with the other devastating features of nuclear war in the years after such a war or a more isolated disaster. It is very likely that a long term increase in the genetic load will be added to what is present already, but it is perhaps fortunate that so many genetic mutations appear to be so lethal as never to pass beyond the earliest stages of pregnancy.

What we know about the genetic effects of radiation should not make us complacent, since irradiation is already with us, and it is at present the medical profession which, mostly for good reasons, is currently producing more exposure than the military causes. We can only hope that it remains this way.

Further reading

UNSCEAR reports: Sources and effects of ionizing radiations. United Nations. 1977, 1982.

Vogel F and Motulsky A.G. Human Genetics. Problems and approaches. Springer 1979, pp 282-368. Mutation.

DISCUSSION AND CHAIRMAN'S CLOSING REMARKS

Sir Richard Doll

DISCUSSION

Question: Would a shelter be any good at ground zero?

Prof. Boag: It is very unlikely to be any good to you unless you're fifty feet down, and supplied with oxygen and with a means of getting out again afterwards.

Question: How long would one have to stay in a shelter five miles from ground zero?

Prof. Boag: Assuming a one metagon bomb and depending on the way the wind blew at the time you might be in the middle of the heavy fallout and have to stay in there for a month or even longer. If, on the other hand, the wind had blown the other way you might be able to come out in a few days if you knew that it was safe. Unless we all carry reliable dose meters I don't see how we are going to know the radiation levels. We cannot depend upon official circles telling us details of the local fallout pattern.

Question: Have not most of the figures quoted assumed that people would be in the open rather than in shelters?

Prof. Jacobs: There are many factors that have to be considered. Most reports have tried to take this into account by calculating results for different times of day or for different seasons of the year, assuming 5% or 50% of people in the open. But whatever assumptions are made the figures are really quite dramatic. Now with regard to the actual target area, which from a one megaton explosion would be two to three miles from the centre, there would be complete and absolute devastation of all buildings and most people. This refers even to concrete structures. Now I agree if you can find deep underground shelters of the type that Prof. Boag just described for the population of entire cities, that might be effective.

Question: What is the amount of radiation now in peacetime and to what extent is it responsible for disease?

Prof. Boag: There is what is called natural background radiation coming partly from the radioactivity in the earth and partly from

cosmic radiation from outer space. We have known about this for a very long time. The human race evolved when that radiation was several times higher than it is today, so it can't be entirely disastrous at that level. What we are doing in this country with medical treatment and so on is increasing that by not more than about 20%. In the United States that figure might be, perhaps, 60%. This whole question was recently examined by the United Nations Scientific Committee on the Effects of Atomic Radiation. It brought out some new information, namely that brick houses allow the radon from the earth to collect, thus increasing the radiation level, so that instead of speaking of 0.1 rads per year we are thinking in terms of 0.2. Nevertheless, I think there is no danger of our civilian activities increasing radiation levels to a dangerous extent. Now to what extent they contribute to the level of cancers and so on is not known accurately, but it is believed that radiation is only a small factor in the spontaneous rate of cancer induction, that chemicals in the environment and other effects are more important.

Sir Richard Doll: An estimate that was made in 1981 indicated that something of the order of 1% of all cancers might be due to radiation of all sorts.

Prof. Harper: The added irradiation from medical and fallout sources has not yet exceeded the background, natural radiation, although it is coming up to being the same order of magnitude. Of that external radiation still the greater part is medical.

CHAIRMAN'S CLOSING REMARKS

Sir Richard Doll: I only want to make one remark in concluding the first session and that is that as biologists we recognise that man inherits a great deal of his physical characteristics and much of the way in which he behaves from previous generations. It is argued therefore that we've always had wars in the past and that because of this genetic inheritance we must have them in the future. This ignores that fact that man differs from any other animal in that he also inherits learning and there is absolutely no reason for us to say that because we've always had wars in the past we must have them in the future. We can learn from our experience and we can pass that learning on to successive generations, and it is that knowledge which encourages our campaign to carry out its activities because we believe that by intelligent interpretation of what has happened and by education of people that it will be possible to prevent nuclear wars in the future.

IN THE EVENT OF A NUCLEAR WAR

there will be no chances,
there will be no survivors
– all will be obliterated...
nuclear devastation is not science fiction
– it is a matter of fact.

The world now stands on the brink
of the final abyss.
Let us all resolve
to take all possible practical steps
to ensure that we do not, through our
own folly, go over the edge.

Lord Louis Mountbatten
Strasbourg 11 May 1979

HEALTH PLANNING

IN RELATION

TO NUCLEAR WAR

A LOCAL AUTHORITY VIEW

Rev. Bob Morgan

The proclamation by the eight Welsh County Councils that they are Nuclear Free Zones is one of the most remarkable events in the history of the Peace Movement. This decision by the Welsh people echoed around the world. I knew the Proclamation was on its way as I was one of the signatories and I was in Minneapolis at the time of the first announcement on American television. The local newspaper contacted me and I gave then the story behind the Welsh decision and this was printed soon afterwards. What is especially remarkable about the Welsh County Councils' decisions is that every County Council acted acted independently. There was no central campaign nor was there any single party political pressure. The Welsh County Councils are by no means all Labour-controlled. In fact the Counties in West Wales and in North Wales are vigorously independent. What we saw was a genuine grass roots, cross-party reaction. The propaganda value of such a Proclamation cannot be over-estimated and together with the remarkable witness of the Welsh women at Greenham Common, the Welsh contribution to the now world-wide Peace Movement is second to none. I would at this point make special mention of Helen John, whose imprisonment was a disgrace, but whose witness did much to create the incredible event of the circular seige of Greenham Common Air Force base. But is the Nuclear Free Declaration just an empty gesture as our critics would have us believe? Should not County Councils get on with the business of providing their local services and not get mixed up with matters which are the sole province of Central Government? That is the argument which is directed at us by our opponents. They point to the ultimate futility of the Nuclear Free Zones Declaration by stating that Central Government will take no notice of such declarations. They would instance the Royal Ordnance Factory at Llanishen, Cardiff, which continues to manufacture components for nuclear weapons in spite of South Glamorgan County Council's decision to declare itself a Nuclear Free Zone. Why are the Local Authorities so involved and how did they become so involved in the anti-nuclear

local authorities for the welfare of local people. Local Authorities are responsible for the basic civilised human services at the local level. Broadly speaking, Parliament legislates and the Local Authorities give effect to that legislation. Central Government decides on the broad policies and Local Government carries it out. For instance, Parliament legislates on Education, but the actual provision of the Education Service is undertaken by the Local Authorities. We engage the teachers, determine the policy, and have the essential day-to-day contact with the children and their families. Similarly with Social Services - the elderly, the handicapped, the children in difficulties are all legally protected by Parliament's laws, but their immediate welfare is the direct responsibility of the Local Authorities. The same practice applies to a multitude of functions which are carried out by local government, such as new roads, housing, public health, libraries - indeed all the modern serivces of local civilised society.

The Local Authority councillors are democratically elected and have a direct responsibility to the public whom they serve. They have to interpret and apply Central Government legislation and policy in the way which best meets the needs of their own local communities. We are provided with large sums of money from Central Government, with which, together with the money raised through the rating system, we are to provide local services to the community, but Councillors are by no means meant to be puppets, simply carrying out Central Government orders. Local councillors are far more accessible to the public than any members of Parliament and their decisions are subjected to instant critical attention in the local press. And, in all honesty, that is exactly how it should be. It means that local councillors are essentially closer to local public opinion than any other public representative could hope to be.

In addition to the traditional functions of local government, the Emergency Planning function is one which presently gives us great concern. Central Government requires that the Local Authorities shall have contingency plans ready to protect the public in times of disaster. Every County Council is responsible for drawing up weapons movement? The background to Local Government's concern for local affairs and local people stretches back for one and a half centuries. It reflects the increasing duties and concern of

plans to deal with such natural disasters as flooding or snow. As an example, during the last snow crisis in January, 1982, South Glamorgan County Council put its plans into operation to co-ordinate relief work. The Fire Service, the Road Clearing Services, the Social Services and various voluntary services were all brought together under that plan to provide the best services possible to the snow-bound people of South Glamorgan.

It is one thing to prepare emergency plans for natural disasters like snow, floods, droughts and so on, but another significant part of the Council's Emergency Planning Service comes from its legal obligation to prepare for a Nuclear War. The Chief Executive of the County Council would have sole authority and have full local control in the event of a nuclear war. The County Council is obliged by Law to produce a County War Plan to meet that emergency. This is now the main task of the Council's Emergency Planning Officer. Most Counties now have their War-time headquarters where experienced officers of local, national, and voluntary organisations may hope to reconstruct our society. For many years senior officers and councillors have been attending courses at the Home Defence College at Easingwold in Yorkshire in preparation for this Armageddon. In addition the Local Authorities have, for many years, been taking part in Civil Defence exercises such as 'Operation Square Leg'.

It is the euphemism 'Civil Defence' which is applied to these functions which irritates the feeling of most councillors when it comes to the nuclear war issue. At the Home Defence College in Yorkshire councillors and officials are faced with such problems as, for example, how to deal with the survivors of a nuclear attack. They are advised to ignore the many thousands of wounded and badly burned people in the heavy radiation areas. Supplies of food and medicine will only be sufficient for those who have a chance of long-term survival. Since the hospitals would, in all probability, have been destroyed, as well as most of the doctors and nurses, there would be little that could be done anyway. There would be the need to dispose of hundreds of thousands of corpses and the limited food supplies would have to be ruthlessly defended from the desperate and hungry survivors. The Chief Executive of the County Council, the Police and the Armed Forces would be responsible for Law and Order and for the creation of a new form of local and regional government. Elected Democratic Government,

councillors. Central Government policy seriously contemplates such total destruction and this alone has led to the profound reaction by a great number of Local Authorities. It is the realisation that our people have literally no protection and that none is planned that offends those councillors who have a serious sense of responsibility. It is the realisation that a City like Cardiff, which manufactures parts for nuclear weapons, could be totally obliterated by a single well-directed one-megaton bomb, which frightens councillors into their protest.

The Government's calculated acceptance of a 200 megaton nuclear attack on Britain resulting in between 20 million and 40 million dead can only mean that our national leaders have taken leave of their senses. Such Central Government policies which are so destructive of human life and property and which lead to the end of democratic government cannot possibly be tolerated. Polices which contemplate the destruction of Great Britain are matters of concern for every man, woman and child in this Country. At the start of this address I posed the question whether local authorities should concern themselves with what are claimed to be the affairs of Central Government alone. What better reason could there be for local involvement than the prospective terrors which I have just mentioned. Local Authorities are intimately and deeply involved in the nuclear debate and cannot possibly acquiesce in such foolhardiness.

The first reaction of the Welsh County Councils has been to declare their Counties to be Nuclear Free Zones. The logic behind this move is quite clear. If there are no nuclear weapons either manufactured, transported or sited in the County then the major reason for a nuclear attack on that particular county is removed. The first task of an enemy in a nuclear war must be logically to destroy the nuclear weapons of the other side or they will themselves be destroyed by these very weapons.

The second reaction of the Welsh County Councils has been to refuse to co- operate in the Government's Civil Defence and military exercises. We must tell the people the truth - there is no defence of the civil population. Those who may survive will inherit a radio-active desert and suffer the most appalling diseases. The genetic effects of radiation may well reach far into the future and seriously damage generations yet unborn.

Society will inevitably move backwards into the most primitive of existences. As the scientists among you will know, one of the basic and most essential substances of the hydrogen bomb is the isotope of hydrogen called deuterium. It creates the H-bomb - a device which mimics the thermonuclear fire of the sun itself.

One of the discoverers of the deuterium was Professor Harold C. Urey who, between 1940 and 1945, had been Director of War Research on the American Bomb Project. After his discovery he is credited with having made this prophetic, clear and terrible prediction:-

> "The next war will be fought with atom bombs - and the one after that with spears".

In 1982 Operation Hard Rock was abandoned because of the refusal of many Local Authorities to co-operate. But the true test of real local opinions is yet to come. The Government are attempting by legislation to force Local Authorities to take part in 'Civil Defence' and Training excercises. The proposed legislation is in the form of 'conscripting' Local Government Officers to carry out these exercises in spite of the democratic decisions to the contrary of the County Councils. This is the beginning of the break-down in democracy which just the threat of nuclear war must eventually bring about.

South Glamorgan County Council is going further in its reaction. The Council is producing a leaflet, for every household in the County, clearly setting out the most probable results of a one megaton bomb exploding a mile and a half above the centre of Cardiff. This is part of our campaign to tell the people the truth. The openly stated intention of the County Council to publish this leaflet has already been subjected to a degree of public scrutiny, mainly encouraged by those who, while not knowing what is written in this leaflet, nevertheless appear to object to the information it contains. But the contents of this leaflet are purely factual - horribly and terrifyingly factual, it is true - but honestly factual - of that there is no doubt!

Normally, when civic leaders produce and proclaim some new and enlightening document which discloses further steps in the local council's programme of concern for its people - then that is usually a matter of civic pride - equally it is usually an

indication of a step forward in local care and consideration.

Today, however, the prospect of the detonation of one single nuclear weapon over our County of South Glamorgan is related in terrifying simplicity in this leaflet. The County Council will have this leaflet delivered to every household in the County so that everyone will be fully aware of the true meaning of nuclear war. It is the awareness of the practical truth that we are anxious to arouse.

Just two weeks ago, a local newspaper in South Glamorgan published an anonymous letter which claimed that County Councillors had no right to disseminate the kind of information contained in this leaflet - even though the author of the letter could not have known its content at that time. The anonymous correspondent went further and called upon the local district council to call its district a "leaflet-free Zone". His real message is clear - "Keep everyone in ignorance - hide the truth - pretend that it can never happen here."

That truly sums up our predicament. We will publish this leaflet. We will tell the people the truth. We have allowed our schools to show such films as the War Game to senior pupils and have encouraged the introduction of Peace Studies into the schools' curriculum along the lines set by Atlantic College - an international 6th form college in South Glamorgan.

The days are gone when Kings and Queens, Presidents and Prime Ministers and Army Generals can manipulate their forces like pawns in a chess game and send thousands to their death in order to gain a few yards of territory. It is absurd to argue that nuclear war policies sould be left to a government with five years in office, during which time Great Britain could be obliterated. The debate is a public one. We are all in it together. There are moral, medical and political implications at the deepest level. It is our lives and the lives of our children and the yet unborn that national politicians are gambling with.

I dared a little earlier in this address, in an unscientific way, to refer to one of the basic isotopes whose discovery had added to our fears of the dangers of "a litle learning" in the field of nuclear physics. May I now spread my rather unscientific wings a

little further and remind you of the initial effects of radiation on the human body. The sensitivity of human cells varies throughout the entire body. The most sensitive parts are those involved with the manufacture of blood, and the reproductive organs. At the other end of the scale, the part of the human body which is least sensitive to radiation effects is - "the brain".

Ladies and gentlemen - it is our human duty to make the brains of our political leaders a little more sensitive to our viewpoint than they would be to the indiscriminate alpha, beta or gamma radiations of nuclear war.

Our national and international leaders have an incredibly difficult task in the maintenance of international law and order. It would be foolish not to recognise the difficulties of their position. They are caught up in a terrifying arms race, they are under great pressure from the arms lobbies and the military. It is our responsibility to put even greater pressure on them, to demonstrate to them the will of the ordinary people to halt the nuclear arms race, to get rid of all nuclear weapons and to demand that they find alternative solutions to the political and economic problems that face us in this dangerous world.

I beleive that Local Authorities have a decisive part to play in the movement towards peace. As leader of South Glamorgan County Council I intend to see that this small corner of our World shows all its neighbours, both near and far, that we understand both the meaning of true peace, and the appalling and totally unacceptable alternative of mutual nuclear destruction.

I wish to convey my thanks to the Organisers of the Medical Campaign Against Nuclear Weapons and the Medical Association for the Prevention of War for making this Conference possible. On behalf of the ordinary people of the County Of South Glamorgan I thank you for your efforts and wish you every success in you future Conferences.

[illegible] August [illegible] aircraft [illegible] explosive power [illegible] all the wars in history.

In peacetime, the largest explosion to occur in Britain in recent years was at the petro chemical plant at Flixborough. This blast that ripped off roofs one mile away, has been estimated as being equivalent to **20 tons** of TNT. We are talking about bombs that are 50,000 times more powerful.

The total nuclear explosive power in the World today is equivalent to about one million Hiroshima bombs, or more than three tons of TNT for every man woman and child on the planet. As the sections that follow show, it means that if a nuclear war were started - by accident or on purpose by a 'superpower' or by another nation or group - the destruction would be beyond anything ever before experienced by the human race.

WHAT A NUCLEAR WAR WOULD DO

In the event of a nuclear attack on Britain, many more bombs than the one on Cardiff would explode, of course. Some would create large clouds of radio-active dust that would slowly and invisibly settle many miles away from the explosion (fallout). People exposed to this material would develop varying degrees of radiation sickness, with the symptoms of diarrhoea, vomitting, hair loss and fatigue, and for many people death, which might be rapid or take weeks. For many of those who survived, the recovery would be long and painful, perhaps with permanent disability.

There would be little medical care and few facilities for the many thousands of people with burns, or suffering from radiation sickness, blast injuries or combinations of these. Psychological shock would cause further chaos by producing hopeless inactivity among survivors. Epidemics of diseases that were common hundreds of years ago, such as plague, would break out.

There would be serious shortages of food with stocks destroyed and little hope of replacing them. Fresh water would probably not be available. Basic services such as fire, police and sewage disposal would disappear. There would be no electricity or gas supply and probably no radio, television or telephone.

THE WORST MAY BE UNKNOWN

What is likely to happen is horrible, what can't even be guessed at could be worse. This was the conclusion of an important American Government study of the effects of nuclear war. It is almost impossible to calculate what would happen to our environment - air, water, plants, trees, animals, etc. Society as we know it would probably collapse under the combined pressures of massive death and destruction, fear, despair and conflict.

THE INCREASING DANGER

We face a real challenge for survival that will become even more critical if the American Government is successful in bringing Cruise missiles to Britain in 1983. The decision to play host to these missiles, which would be entirely under the control of the Americans was taken without the knowledge of the British people.

Their presence would increase the chances of war manyfold and would make the southern parts of Britain, including South Wales, even more important targets.

ACTION BY SOUTH GLAMORGAN COUNTY COUNCIL

In response to the dangers outlined above, the County Council resolved that South Glamorgan should become a 'Nuclear Free Zone'. They decided actively to oppose the manufacture and siting of nuclear weapons within the County, to allow the Campaign for Nuclear Disarmament to mount exhibitions in County libraries and for the film 'The War Game' to be shown in schools that request it. All counties in Wales and many in Scotland, Northern Ireland and England have made similar declarations.

WHAT YOU CAN DO

This is an issue which effects YOU because your survival, your family and future generations are threatened by nuclear weapons.

You should -

LEARN as much as you can about the effects of nuclear weapons, the arms race and the prevention of war, read books and pamphlets, watch T.V. programmes, see 'The War Game' and go to meetings about these issues.

TELL other people what you know. Talk about the urgency of disarmament to your family, friends and people at work. They may not agree at once but they may start to think and find out.

LOBBY, talk to and write letters to your councillors, members of parliament and trade union leaders. Make sure they are well informed about this issue. Demand effective disarmament measures now.

ORGANISE in groups, for mutual support and effective action, in local areas, churches, trade unions, political parties, professional groups, or join an existing group. Use your talents to help the groups whether they be in public speaking, organising, typing, building, doing artwork - WHATEVER!

MEDIA - Supply news and write to newspapers, periodicals, trade and professional journals. Approach T.V., local and national radio. Use phone-ins and open-door programmes to publicise your views.

TAKE PART in demonstrations, marches, conferences, sign petitions.

STAND UP AND BE COUNTED.
THE ARMS RACE MUST BE REVERSED.
NUCLEAR WEAPONS MUST BE DISMANTLED!
SUPPORT NUCLEAR FREE ZONES.

You may or may not agree with the County Council, but try to reach your own conclusion. Do not assume that someone else always knows better than you about things like this. The future is in all our hands.

GROUPS YOU CAN CONTACT

Campaign for Nuclear Disarmament
c/o Friends Meeting House
Charles Street, Cardiff

Medical Campaign Against Nuclear Weapons
c/o 20, Palace Road
Llandaff, Cardiff
Telephone 562021

Scientists Against Nuclear Arms
c/o 32 Talworth Street
Roath, Cardiff
Telephone 493196

Women for Life on Earth,
c/o 70, Morris Finer Close,
Ely, Cardiff
Telephone 566548

The United Nations Association
Temple of Peace and Health
Cathays Park, Cardiff
Telephone 28549 or 395664

The Peace Shop
56, Mackintosh Place
Roath Park, Cardiff
Telephone 489260
Open 10am-7pm Seven days

The Peace Shop can introduce you to all these groups

COUNTY OF
SOUTH GLAMORGAN

Published by South Glamorgan County Council PGA SC200M1182

SOUTH GLAMORGAN AND NUCLEAR WEAPONS

Produced by South Glamorgan County Council
in consultation with local Doctors and Scientists

WHY SHOULD I READ THIS LEAFLET?

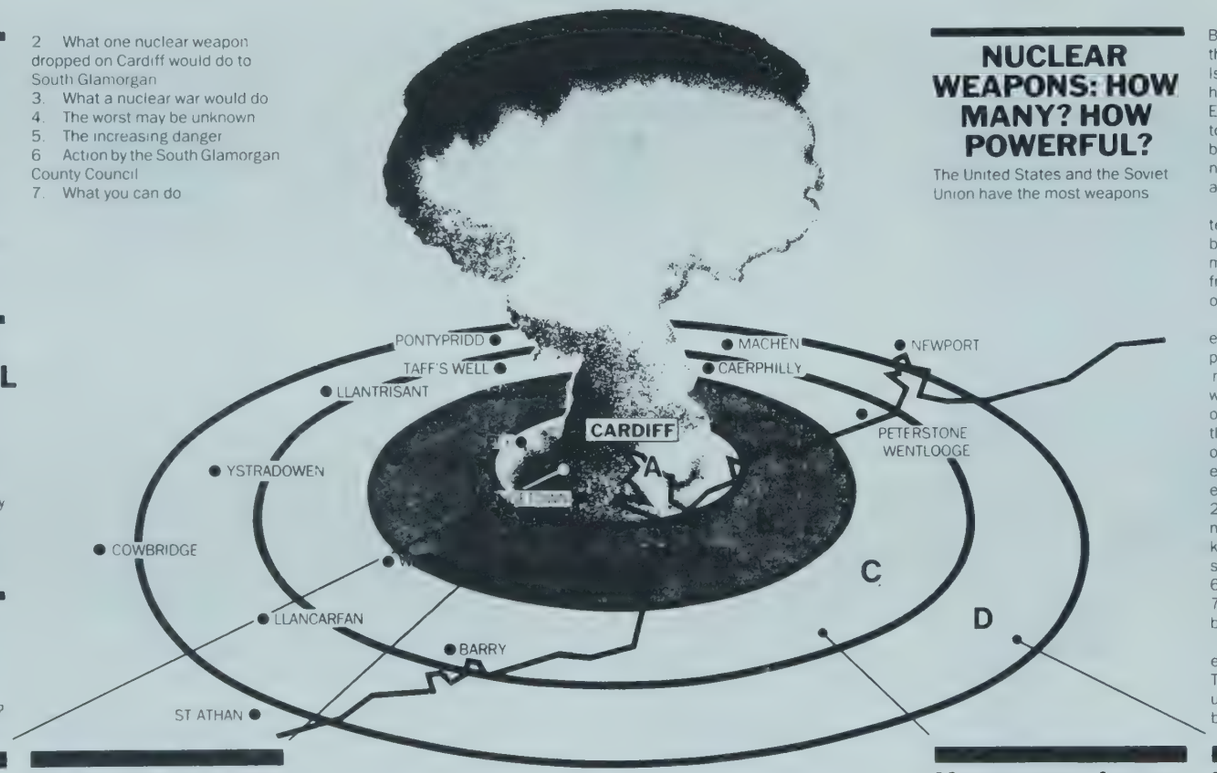
This leaflet is about something unpleasant and frightening nuclear war and the death and destruction of all that you treasure The danger is real The risks are great You should read this leaflet because you will learn what is at stake Then you can decide what you wish to do about it

WHY HAS THE COUNTY COUNCIL PRODUCED THIS LEAFLET?

After learning about the things described in this leaflet, the County Council felt a responsibility to act. It decided to distribute the information to inform you of the threat we all face from nuclear war A threat that must be avoided

WHAT THIS LEAFLET DESCRIBES

1. Nuclear Weapons How many? How powerful?
2. What one nuclear weapon dropped on Cardiff would do to South Glamorgan
3. What a nuclear war would do
4. The worst may be unknown
5. The increasing danger
6. Action by the South Glamorgan County Council
7. What you can do



If you were in Cardiff (Inside Circle A)

Practically everyone within 2 miles of City Hall would be killed. Nothing recognisable would remain. The City Centre and buildings further away such as the Heath Hospital and Llandaff Cathedral would be levelled This devastation would occur within seconds. If anyone survived the initial blast they would be trapped in the ruins of buildings and be severely injured. No assistance could be provided for them and they would be left to perish

If you were in the suburbs of Cardiff (Inside Circle B)

Areas out to 3¼ miles, including Penarth, Llanrumney, Llanishen, Whitchurch and Ely would experience winds of over 150 mph Most houses and vehicles would be destroyed. It is highly likely that a 'firestorm' would develop, engulfing the area in an inferno that would kill even those in shelters, by heat and asphyxiation

Say you were one of a group of 10 people in one of these areas Half of you would die from the initial blast and another four would be injured. Up to half of the survivors of the blast of the explosion might ultimately die from burns. Others would die, sooner or later, from exposure to radiation

WHAT ONE NUCLEAR WEAPON DROPPED ON CARDIFF WOULD DO TO SOUTH GLAMORGAN

In the 1980 NATO exercise 'Operation Square Leg' Cardiff was supposed to have been subject to a direct hit. Suppose a one megaton bomb exploded 7,000 ft. above Cardiff City Hall.

If you were in one of the regions near to Cardiff (Inside Circle C)

Imagine that you were fortunate enough to be further away from central Cardiff - in Barry or Caerphilly, say. Even at that distance half the people would be killed or injured. Winds of nearly 100 mph would cause severe damage. Debris in the streets would stop traffic. Fires would spread throughout most of the area, burning uncontrollably for at least a day and destroying half the already severely damaged buildings

If you were even further away (Inside Circle D)

Regions between 8 and 12 miles from the explosion centre, including Newport, Pontypridd and Llantrisant would experience high winds giving rise to considerable risk of injury from flying glass Burns received could prove fatal without medical treatment Anyone looking in the direction of Cardiff at the moment of explosion would be temporarily, or possibly permanently, blinded

NUCLEAR WEAPONS: HOW MANY? HOW POWERFUL?

The United States and the Soviet Union have the most weapons Britain, France and China have them as well India, Pakistan, Israel, South Africa and others may have them or be trying to get them Even terrorist groups may be able to make and deliver nuclear bombs The general public does not know at whom these weapons are aimed

The World s arsenals contain tens of thousands of nuclear bombs These are carried on board missiles that may be launched from land, by sea from submarines or dropped from aircraft

Each nuclear bomb is, of course, extremely powerful Their explosive power is described by the word 'megaton' A one megaton bomb would have the explosive power of one million tons of TNT The bombs that destroyed the Japanese cities of Hiroshima and Nagasaki at the end of World War II had the explosive power of between 10 and 20 thousand tons of TNT So a one megaton bomb - the size of the kind that could hit us - is about seventy times more powerful 68,000 people were killed and 76,000 injured by the Hiroshima bomb

It is difficult to imagine the explosive power of these bombs The **total amount** of explosives used throughout World War II has been roughly estimated at 5

THE ROLE OF THE COMMUNITY PHYSICIAN

Dr. June Crown

The Role of the Community Physician in Health Planning

The District Medical Officer is the community physician member of the District Management Team, with a job which consists very largely of planning health services for the local population and within local hospitals.

District Medical Officers also have responsibility for planning for unexpected and undesirable events such as major disasters - rail crashes or fires, outbreaks of highly contagious diseases or, in my own District, flooding of the River Thames. For these eventualities the main aim is prevention, but it is essential for contingency plans to be well worked out so that an emergency can be swiftly and effectively dealt with.

The Method of Planning

These sorts of planning, within the NHS, are dealt with by a series of processes, the first of which is the identification of the problem, followed by clarification of the aims of the plan. It is often possible to think of several different ways of achieving these aims, and these options can be studied to see which is most suitable in terms of effectiveness and cost. When the preferred option is selected, detailed plans are produced for putting it into action.

The whole process is the subject of wide consultation so that people both inside and outside the health service, who might be involved with the service concerned have an opportunity to express their views and offer their advice. In matters of policy, and in all major plans, the decision about the selection of the preferred option is taken by the members of the Health Authority who are representatives of the public, responsible for the activities within the District, usually after discussion at public meetings. The decisions, and information about the agreed plans, are

communicated widely to everyone who is likely to be involved in carrying them out.

It is only by this process of wide discussion during the preparation of plans that agreement can be reached on a way of dealing with a problem which will command widespread support, without which the plan cannot be effective. Similarly, failure to inform all those likely to be involved in carrying out the plan about their role in it can only result in confusion and failure when the plan is put into action.

How is "Nuclear War Planning" different from other "Disaster Planning"?

Health planning in relation to nuclear war can be approached along these same lines. Difficulties are soon encountered because of some fundamental differences between the situation likely to exist in the event of nuclear war and in other disasters.

Present plans for dealing with emergencies are based upon quite definite assumptions that they will take place within a background of civil stability; that staff and other resources from non-affected areas will be available to help; that there will be an intact and functional, even if restricted, communication and transport system; and that the rest of the community will be involved and concerned in supporting victims. None of these assumptions are necessarily valid in the event of nuclear war.

Present emergency plans are aimed at dealing with unpredictable events. It seems generally agreed, however, that a nuclear attack would be preceded by political negotiations and conventional warfare covering a period of a few days or weeks. Such a build up period may be considered to have advantages for the health planner, as it would enable hospital beds to be emptied, staff briefed and emergency supplies assembled. It would, however, undoubtedly introduce problems of personnel control - how would staff be persuaded to stay at their posts, away from their families, at a time of uncertainty about "where the bomb will drop". This aspect of the problem would require explicit combined planning with those authorities responsible for civic control.

Plans for nuclear attack also differ in dimension from present emergency plans. The likely number of casualties and the difficulties of maintaining supplies of basic resources, such as uncontaminated water, far exceed anything which has previously been experienced. Major natural disasters such as earthquakes and floods claim victims of thousands rather than hundreds of thousands, and atract immediate help from international relief agencies, which one must assume would not be forthcoming in a world experiencing nuclear attack.

The Contents of the Plan: Some Areas for Debate

The community physician charged with preparing a nuclear war plan has a responsibility to predict as accurately as he can the likely situations in which his plan will be brought into operation and to include feasible proposals for achieving the plan's aims. These will presumably include not only the relief of suffering and the immediate treatment of victims but also the longer term survival of individuals and of the community as a whole. These requirements force consideration of and decisions about a variety of issues, none of which are legitimately decided by community physicians or even by the medical profession as a whole.

(i) Who can go where? Will it be necessary to control the movement of medical staff?

In normal circumstances, and in our major disaster plans, arrangements are made for teams of doctors and other staff to go out to attend to victims, and it is generally expected that doctors will disregard personal safety when patients are in need of care. In the event of nuclear attack, would this requirement be superseded by the need to protect health service staff from the effects of radiation, so that they can treat the patients who reach medical centres? If this is the case, what arrangements need to be made for patients immobilised away from these centres?

(ii) Who can do what?

There is usually very little difficulty in deciding what constitutes "medical expertise", and there are generally shared expectations about the activities of professionals in the fields

of diagnosis and treatment, both in normal and in emergency situations. In the event of nuclear attack, there are likely to be enormous numbers of casualties: it cannot be expected that disproportionate numbers of health professionals will survive, and those who do survive may have their activities and movements restricted in the common interest. In this situation, what other groups will be deemed to have appropriate skills to deal with casualties, and what would be an appropriate extension of their normal range of activities? Would all doctors be expected to undertake surgery? Would nurses be expected to undertake surgery? What would be the role of paramedical staff, pharmacists, veterinary surgeons and nurses, non-medical scientists, first aiders?

(iii) Criteria for triage

The arrangements for dealing with major accidents include the early assessment of all victims. Those in whom death is inevitable, usually as a result of obvious injury, are given comfort and support and relief of their suffering. Treatment is instituted as soon as possible for those whose injuries are serious but not inevitably fatal.

In the event of nuclear attack, the initial assessment of victims is much more difficult, as the inevitability of death will relate not only to obvious physical injuries, but also to radiation exposure. In addition, the numbers of victims with potentially treatable conditions could well be much too great for the treatment capability of remaining services.

In this situation, how are decisions and choices to be made? Should account be taken of the longer term needs for the preservation of the community, with selection for treatment based on the age, skills and abilities of the survivors? Should these criteria also apply in the distribution of uncontaminated food and water, if these are in short supply?

(iv) Management of the dying

Following a nuclear attack, there will be large numbers of people affected by injuries or radiation in whom death is inevitable, but likely to be delayed for days or weeks, and for whom opportunities

for care and relief of suffering may be minimal. What is an appropriate and humane health care planning approach to this group? Should euthanasia be offered? If so, on the basis of whose decision, and who should be responsible for the administration? What should be done about elderly people and children who could not make such decisions on their own account?

Conclusions

There is no doubt that in the event of nuclear attack there would be enormous numbers of casualties, but there would also be survivors, and that community physicians have a role to play in the planning of health care for both the immediate situation and the longer term care and rehabilitation of individuals and society.

The planning process at the moment, however, is, in my view, at the early "discussion and consultation" stage. The responsibility of the community physician at present is to bring to the attention of those involved in the health service, and more important, to the public at large, some of the issues involved, the problems we may have to face and the possible solutions which could be available to us. If, as a result of public debate, there is some measure of agreement on the policies to be adopted for dealing with the complex social, ethical and moral problems, some of which I have mentioned above, District Medical Officers can then legitimately develop health plans. The organisation of "casualty collecting centres", the arrangements for surgical services and the development of longer term health care facilities are relatively straight forward matters provided that they are based on policies which command general public support.

The community physician is the servant of the public, not of government departments. He has a responsibility to plan for the health needs of individuals and groups in accordance with the wishes of the community. His role at present is to ascertain, through informed discussion, what those wishes are. He has no right to be involved in the preparation of "plans" which are totally unrealistic in relation to the situation they are designed to meet and which take no account of the real and predictable problems they will encounter. Nor should the community physician

COMMUNITY HEALTH CELL

be involved in the preparation of "plans" which are not widely communicated to the public.

When the public learn not only about the number of people who would inevitably be killed in a nuclear attack but, perhaps even more frightening of the appalling conditions which would face survivors, when they learn not only of the part they will have to play, but of the responsibilities they will have to be prepared to bear in the interests of survival, they must surely realise that the only realistic "plan" is prevention.

THE CASUALTY DEPARTMENT

Dr. Roger Evans

When I was first asked to carry out a study of the response of the Accident and Emergency Services to a nuclear explosion in Cardiff my immediate reaction was that we would be overwhelmed and paralysed by the sheer scale of the event. However, paralysis is not a natural Welsh reaction to any situation, at the very least we would all sit down and talk about it. In discussing the calamity with my senior colleagues I was reassured when they told me that it would only be a very much scaled up version of the mass suicide attempts seen in Cardiff once every twenty years when Wales loose to England at the Arms Park. Thus encouraged, I set out to gain some authentic background and for this I turned to the recent NATO and Civil Defence Exercises such as Crusader, Scrum Half, Inside Right and Square Leg. The latest in this series is Hard Rock, which was so unrealistic as to appear more like a public relations exercise, probably produced by Saatchi and Saatchi in collaboration with Morecombe and Wise. In the scenario for Hard Rock many obvious sites in the U.K. aren't targeted at all, and many which are, turn out to be missed by the warheads. Wales shares in this general good fortune, Milford Haven is hit but Swansea is missed and Cardiff and the Steel/Petro-Chemical complex at Neath/Port Talbot aren't even targeted. So, who draws the short straw? Yes, you've guessed it Builth Wells (Builth Wells, Powys, Population 1480, early closing Wednesday, Brecon 21 miles Hereford 40 miles). A very foxy move this, only the subtlest Kremlin-watcher anticipated such a hammer blow and we're immediately caught on the wrong foot. The casualties will be up into six figures and that is just amongst the sheep. No major military centre can now be considered safe, they could strike anywhere. The marshalling yards of the scenic railway at Blaenau F f e s t i n i o g , o r e v e n G o d f o r b i d Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch, if they can get it all onto the computer.

As I know nothing about the emergency veterinary services in Powys, I felt at this stage that I would have to modify Hard Rock,

and in my version (Hard Cheese) I have the Builth Wells bomb missing Powys and smacking into Cardiff. Estimating casualties from a nuclear explosion is very much a matter of educated guess work. There are many variables including air- burst versus ground-burst, size of weapon, time of arrival, clear or over- cast weather. However, we can safely assume in a heavily populated area like Cardiff, that we will take a minimum of 40,000 injured. The Accident Unit in which I work is one of the busiest in the country with a through- put of something over 250 patients a day, so we are fairly used to dealing with large numbers. Admittedly many of our usual patients have minor injuries which we are able to cope with fairly rapidly, however even now, if we take a single major injury we have to change step a little. Two at the same time means that our routine is slowed down and three or four together would stop the treatment flow of the minor cases. Twenty or so severe injuries simultaneously and you are into the major disaster plan, mobilising all the area's resources, and somebody, somewhere, seems to think that we can deal with 40,000. Assuming the best possible scenario with the hospital still standing, fully staffed and with all utilities functioning (this in itself is unlikely enough to fit in with the rest of the Hard Rock picture) our first problem would be getting the severely injured in, and with the road covered in rubble and the Ambulance Service decimated "self-help" would be the order of the day. I suspect that in reality my main contribution to medical care following an atomic explosion would be the hundreds of First-Aid lectures I have given.

When they arrive, in their thousands, we will be faced with sorting them into groups. Group one, the patients who need immediate life saving measures such as the arrest of haemorrhage or the relief of acute air-way obstruction. Group two, would be the patients who have injuries which in themselves may be significant but where the treatment can wait. Finally group three, which will be a big group, and will consist of those patients whom, with the strained resources available, we will be unable to treat. They will be put aside to die and unfortunately they will not even die quietly as we will not have sufficent strong analgesics available to ease their pain.

Let us consider one patient from this last group, a man with crush injuries secondary to being run over. Such a patient would

probably need around ten hours theatre time, some twelve units of blood plus four or five units of plasma or plasma substitute, and the services of a thoracic surgeon, orthopaedic surgeon and general surgeon together of course with an anaesthetist. Following operation he would be admitted to a high dependency unit for a couple of weeks, with all its attendant nursing staff, as well as using the skills of para-medical personnel such as radiographers and physiotherapists. Drugs of several types, most particularly analgesics and antibiotics would be needed. In the scene we are contemplating with thousands of other patients waiting for treatment this man is a non-starter, yet in actual fact because he came in on what, for us, was an ordinary working day he was resuscitated, repaired and he is alive and well and back at work.

Even a patient who falls into group one, would not be all that well placed. Let us consider a thirteen year old boy with a partially severed leg secondary to flying glass. He would be treated immediately to arrest haemorrhage, but this boy in fact needed sixteen units of blood in an attempt to save his leg. With the demand on blood he would be lucky to get a couple of units and after that he had better keep taking the iron tablets. The youthful human body is remarkably resilient and he is going to need all his resilience. An orthopaedic surgeon and a vascular surgeon needed nine hours of theatre time attempting a repair. I wonder how many surgeons of this seniority are going to be left, because strangely enough possession of a Fellowship of the Royal College of Surgeons does not actually render you blast proof (though the size of the examination fee might make you think it ought to). Anyway even if they were available nine hours is far too long to spend on one thirteen year old's leg. A quick above the knee amputation is the answer. Of course there won't be any nice custom-built prosthesis with attentive physiotherapists to rehabilitate him. If his father is a bit of a carpenter he might end up with a Long John Silver model, but if not he can console himself with the fact that hopping around on it will certainly strengthen his remaining lower limb.

As far as I can see, though we are quite well equipped and able to cope with large numbers of people coming through, 40,000 casualties, 20,000, 10,000, 1,000 would overwhelm us. 40,000 casualties would overwhelm the whole of the NHS even if we could

distribute them evenly over the whole country. There may be places that can cope better than us, but I don't honestly think so.

I may be taking an unnecessarily gloomy view of things, perhaps the Government have got it organised. I know for instance, that not forty miles from Cardiff there is a huge rock known as Graig y Dinas (The King's Rock) where King Arthur and his Knights are said to be sleeping, ready to emerge if the Nation is endangered. It could be that up in some remote and little visited valley in the foot hills of Plynlimon sits a fully staffed and equiped 10,000 bed hospital with its doctors and nurses waiting in suspended animation for the great light in the sky which will make them all spring into action. If they are there, I hope King Arthur's with them, because if it actually happens we are going to need all the help we can get.

RECONSTRUCTION

Mr. Michael Tempest

Doctors of my generation who qualified in the early years of the last war soon gained first hand experience at home and abroad in the evacuation and treatment of mass casualties and saw a good deal of the mutilation and physical destruction caused by conventional weapons. In my own case I have no doubt that it was this experience as a young Army surgeon and the sight of so much human destruction that led me to take up the specialty of plastic and reconstructive surgery. In particular those rescued from the sea having been torpedoed and covered with burning petrol and oil had extensive full-thickness burns.

In contrast appalling contractures and complications can follow civilian burning accidents in time of peace. The reconstruction of these types of deformity is indeed possible in peace time, but it takes time and often requires several staged operations. In a nuclear war, the situation would be very different. It is doubtful if one would ever reach the stage of reconstruction at all and that is why the title of my paper on the programme should really be followed by a very big question mark.

We know that in a nuclear attack patients with burns will form the largest single group of casualties. 70% of the victims in Hiroshima had burns and 50% of those who died were burned. In the 1980 'Square Leg' NATO exercise there was a hypothetical 'attack' on London using five nuclear devices and based on a hopelessly out of date estimate of the population of Greater London it was assumed that if only 1% of the population were exposed to the effect of heat in the open that approximately 28,000 partial-thickness and 5,000 full-thickness burns would be found among those who had not been killed or injured by the effects of blast. If 25% of the population had not taken cover, the figures would have been 700,000 partial-thickness and 125,000 full-thickness burns. Most of these victims would also have been exposed to potentially lethal doses of fall-out, quite apart from

the effects of blast, other wounds and fractures. We should also not forget the appalling burns that were caused in the last war by the effects of firestorms from conventional bombing techniques: 60,000 deaths in Hamburg, 135,000 deaths in Dresden and 84,000 deaths in Tokyo; deaths caused by heat and asphyxia.

Now the differential diagnosis between a partial and a full-thickness burn is highly significant in terms of survival and in the management of the burn wound. Both types of burns, depending on their extent are potentially lethal and need prompt and intelligent treatment in the early shock phase. It is true that, by definition, partial thickness burns will heal without need for skin-grafting, but this is only the case if the burns are protected against infection and the complication of spreading thrombosis in the damaged skin. These complications immediately convert a relatively simple clinical problem of wound care into a major surgical exercise. This is precisely what would happen in a nuclear war.

How do we treat burns in peace-time?

In South Wales (with a population of just over 2 million) most burns and scalds are treated in the District General Hospitals as out-patients and occasionally some of the victims are admitted to those hospitals. Some 350 to 400 victims are transferred each year to the Welsh Regional Burns Unit at St. Lawrence Hospital in Chepstow where the Welsh Regional Plastic Surgery Service is also based. We have one of the largest Burns Units in the United Kingdom (36 beds in all) and this is the only Burns Unit in the Principality. The treatment of burns and scalds require:

TRANSPORT: first of all to a District General Hospital for assessment and resuscitation before any decision is made to transfer them to Chepstow. This transport is by ambulance, very occasionally by helicopter. In a nuclear war this would be impossible.

PROMPT TREATMENT OF THE SHOCK PHASE: this requires urgent, rapid and intelligent transfusion of blood, plasma, plasma substitutes and electrolytes to restore blood volume and tissue perfusion. This must be started within the first few hours after burning and continue during any transport to another hospital. In a nuclear war this would be impossible.

ASSISTED VENTILATION: patients with inhalation burns need intubation, possibly nursing on a ventilator and a tracheotomy. In a nuclear war this would be impossible.

EMERGENCY SURGERY: to decompress tight constricting burns can be life- saving and limb saving.

THE WOUNDS MUST BE CLEANED, DRESSED OR TREATED BY EXPOSURE: this needs time, equipment, nurses, drugs and dressings. The dressings may need changing, sloughs must be cut away and the wounds prepared for grafting.

BURNS WILL NEED EXCISION AND SKIN GRAFTING: usually using skin-grafting knives, dermatomes and skin 'meshers' to allow one to use skin to the best advantage in extensive burns. Lack of blood for transfusion and lack of blood donors may well make these operations unduly hazardous if not lethal.

ADEQUATE FEEDING: the seriously burnt patient will die unless he is provided with a high calorie, high protein and high fat diet.

OCCUPATIONAL THERAPY AND PHYSIOTHERAPY: this is crucial to maintain function, restore mobility and help minimise or prevent some of the physical complications of burns.

These are the landmarks that guide us in the management of burns in time of peace.

The treatment of burns following nuclear war

In time of nuclear war we will have to answer four very pertinent questions :

WHERE do we treat the casualties? ;with no buildings left standing.

WHOM do we treat? Are there secret lists of people who have to be treated at all costs ?

HOW do we treat the victims? ;with no water, power, dressing, and transport.

WHO will be left to treat the victims ?

It is against this background that we must compare the realistic but very gloomy picture outlined in the DHSS Defence Circular 1977/1 and its Welsh Office counterpart 1977/1 with the fatuous flippancy of that other Government paper, the pamphlet PROTECT AND SURVIVE that was issued in 1980. The Welsh Office Circular, like its English counterpart, is in no way a secret classified document. It simply asked the Area Health Authorities to "....move, as staff resources allow, towards the preparation of plans for the organisation of the Health Service in Wales for War and the introduction of an emergency system of control".

We must be very grateful to the Gwynedd Branch of the Medical Campaign Against Nuclear Weapons for their initiative in writing to the Chairmen of all the Area Health Authorities in Wales and asking what progress if any they had made towards implementing any contingency plan for nuclear war. The main findings of their report published in November 1982 were that one Health Authority in Wales had declined to participate in such planning and that all the other Health Authorities had only draft contingency plans that had neither been formally approved or in any realistic sense tested out. The County of Gwent, in which our Regional Burns Centre is sited, has, to its credit, declared itself a Nuclear Free Zone and I can confirm that I and my colleagues at the Regional Burns Centre have not been consulted or invited at any time by the Welsh Office or any of the Health Authorities to give guidance or advice on the treatment of burns in a nuclear war. The reasons are perfectly obvious. It is our duty to make sure that medical consequences of nuclear war are made crystal clear to our fellow citizens and the Government. Time is not on our side.

To end my contribution to this conference and perhaps link together the two main topics we have been discussing in the sessions this morning I would like to read a poem that was written in the early 1950's by a young British poet who had been a wartime pilot in the RAF. The poem is called 'COUNTING'.

COUNTING

A baby
Tries to count his toes,
A child
His fingers,
Then he goes
To school
And come the proud day
When
Unaided
He counts up to ten!

Then 20...
30...
40..
On
To hundred,
Thousand,
Million...

Reaching
Beyond what he is taught,
A child
Embraces
Daring thought.

Absorbing
All
The world can give,
A child
Desires to live
And live !.

But today
The front-page hero
Is a man
Who counts to zero.

10...
9...
8...
7...
(Not a cloud in bright blue heaven)
6...
5...
4...
3...
(Bomber turns and bomb falls free)
2...
1...(The silence!.)
ZERO

Hell
Breaks loose.
(Helluva hero!)

As the pestilential cloud
Climbs into the burning sky
Think of those who'll need a shroud
When they prematurely die.

Remember,
As the world rearms
And the H-bomb megaton forces mount,
The child with mutilated arms,
The baby
With no toes to count.

Peter Tempest.
First Poems. 1957. Lawrence & Wishart.

DISCUSSION AND CHAIRMAN'S CLOSING REMARKS

Professor Alwyn Smith

DISCUSSION

Question: What does the panel think about putting NHS resources into the appointment of War Officers in the various Health Authorities?

Dr. June Crown: At a time when resourses are very limited it would not come anywhere near my list of high priorities.

Question: Given that the level of protection for the public is the Statutory responsibility of the County Council not of Central government, is it not incredible that South Glamorgan County Council has decided not to help its own people to survive if there is a War?

Rev. Bob Morgan: I think what we are really concerned about is the twenty or forty million people that the government seems happy to accept as the price to pay for defending the Country. Now that I find incredible. These are the people who need protecting. There is enough evidence demonstrating the futility of trying to protect the public if there is a nuclear war.

CHAIRMAN'S CLOSING REMARKS

Prof. Alwyn Smith: The human species is not committed to its own destruction. Indeed, all the evidence suggests that it is committed to the prolongation and improvement of the quality of life, and the medical profession is dedicated to help them in that end. What the medical profession is saying to the public and to the government is do not make our job impossible.

In closing this session I should like to make a brief announcement. The Conference is extremely flattered that Her Majesty's Government has prepared a special statement for this meeting and has sent a copy for each of the 1000 participants. It comes from the Foreign and Commonwealth Office in the form of a five page summary of the Governments Nuclear Deterrent Policy. It's nice to be taken that seriously.

RESPONSE FROM THE FOREIGN AND COMMONWEALTH OFFICE

Foreign and Commonwealth Office
London SW1A 2AH

Telephone 01-

Dr Stephen Farrow
20 Palace Road
Llandaff
Cardiff

Your reference

Our reference C.17

Date 26 November 1982

Dear Dr. Farrow

Thank you for your letter of 21 November, about your forthcoming seminar on ''The Human Cost of Nuclear War''.

There is an implication in your letter and the seminar programme that nuclear war is a reality. In fact, most experts are agreed that the threat of nuclear war is now less than it was in 1962. I find it surprising that your seminar does not address the most important question of all: how the current START negotiations between the United States and Soviet Union can achieve agreement on substantial reductions in strategic arms, and how to eliminate sub-strategic missiles in the INF talks.

There are three basic documents which I suggest all the participants should have in their possession. They are:

(a) the message from Lord Carrington to the Second Congress of International Physicians for Prevention of Nuclear War on 3 April 1982, published in ''Arms Control and Disarmament'' No 12.

(b) the speech by Mr Francis Pym on 25 November entitled ''The NATO Alliance and Arms Control''

(c) the leaflet ''The Nuclear Debate''.

I am enclosing copies of these three publications and should be glad to send further supplies if you need them.

Yours sincerely,

Roy Dean

C R Dean
Arms Control and Disarmament
Research Unit

Editorial Note

Copies of these three basic documents have not been included because of limitation on space. The speech of Mr. Francis Pym, for example, extended to 23 pages.

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C.R. Dean, Esq.,
Arms Control and Disarmament Research Unit,
Foreign and Commonwealth Office,
London.
SW1A 2AH.

11th December, 1982.

Dear Mr. Dean,

re: January 21st 1983 - Conference 'Human Cost of Nuclear War'

Thank you for your letter of 26th November, 1982, together with the three basic documents that you suggested would be useful for all participants at the Conference.

I enclose a pamphlet that seeks to describe the objectives of the Medical Campaign Against Nuclear Weapons. Much of the material you have sent me addresses the question of unilateral disarmament. The Medical Campaign conspicuously avoids entering into the debate of what method of disarmament is likely to be effective. In fact the title 'Campaign' is really somewhat misleading. It is a group, principally of doctors, who believe that information about the medical consequences of nuclear war, and about health planning in relation to nuclear war would be of benefit to those conducting the public debate about policy. We are not experts in policy, but many of us are experts in medicine and health planning. We deplore much of the secrecy and ineptitude that surrounds current civil defence planning in relation to nuclear war. What I should like to suggest is that you give some serious thought to which of your materials might be of use to a largely medical audience.

What would be extremely valuable would be some further information that could back up your statement that "most experts are agreed that the threat of nuclear war is now less than it was in 1962." One of the conference papers is on risk and recent discussions in the medical campaign have centred on the increasing risk of nucear war from :-

(1) increasingly accurate weapons which make possible a nuclear war fighting policy,

(2) the siting of these accurate weapons in Europe with short flight times,

(3) the likel

(4) the mental state of weapons operatives particularly in relation to hard drugs and alcohol,

(5) the likelihood of increased dependence on computer systems to launch on warning,

(6) the likelihood of additional countries acquiring nuclear weapons in the near future.

What we should be interested in discussing would be the development of an information pack - preferably in a conference folder which could be handed to people at registration. We would be most grateful if your Unit would consider providing such a folder together with a set of relevant materials. We are not yet certain of numbers but hope to fill the hall which holds 2,000 people.

The most valuable material would be that relating to (a) health planning, (b) psychological effects of living in nuclear war readiness, (c) the assessment of nuclear war risk. Participants are not likely to be impressed by excessive 'volume' nor by the view of most experts that the risk is decreasing unless this is supported by some evidence.

I look forward to hearing from you.

Yours sincerely,

Stephen Farrow.

Stephen Farrow, M.A., M.D., M.R.C.P., M.F.C.M.,
Secretary, Wales Branch,
Medical Campaign Against Nuclear Weapons.

Foreign and Commonwealth Office
London SW1A 2AH

Telephone 01-

Dr Stephen Farrow
Medical Campaign Against Nuclear Weapons
20 Palace Road
Llandaff
CARDIFF

Your reference

Our reference C.17

Date 12 January 1983

Dear Dr. Farrow,

Thank you for your letter of 11 December. I was most interested in your suggestion for a background note relating to health planning and assessment of nuclear war risk.

I have consulted my colleagues in the DHSS and Ministry of Defence, and we have put together the attached paper. I am arranging for 1,000 copies to be delivered to you.

In the time available, we have not been able to find any material on the psychological effects of living in nuclear war readiness.

Yours sincerely,

C R Dean
Arms Control and Disarmament
Research Unit

CONFERENCE ON "HUMAN COST OF NUCLEAR WAR"

CARDIFF, 21 JANUARY 1983

Note by the Foreign and Commonwealth Office
THE ASSESSMENT OF NUCLEAR WAR RISK

I. Increasingly accurate weapons make possible a nuclear war-fighting strategy.

1. It is not self-evident that the increasing accuracy of nuclear weapons increases the risk of war. The primary purpose of NATO'S defence strategy is to deter war. In order to do so effectively in the face of the Soviet Union we need to possess both nuclear weapons of an appropriate kind and a credible doctrine of use in the event of deterrence ever failing. As the technical characteristics of weapons have changed so have doctrines on which our deterrent strategy has been used, as described in the attached leaflet, ''Deterrence''.

2. The fact that the increseased accuracy of nuclear weapons means that military targets can be attacked does not make it more likely that they will be. Because both sides have such weapons, the chances of retaliation in the event of an attack with so-called ''warfighting weapons'' are very high and so neither side could expect to obtain an advantage from such an attack. There would also be a high level of collateral damage to the civilian population in the densely populated areas of Central Europe in particular. Because of this and because of the quite incalculable risk of escalation of any nuclear war in a full-scale strategic exchange, there would be no advantage in making a deliberate aggressive use of nuclear weapons in a ''warfighting'' role.

3. Fears are often expressed that the accuracy and power of modern nuclear weapons make possible a ''first strike'' attack, in which one side launches its own weapons in a surprise attack to destroy all those of its opponents. This question was dealt with in a speech by Henry Kissinger in 1976:

''Indeed neither side has even tested the launching of more than a few missiles at a time; neither side has ever fired them in a North-South direction as they would have to do in wartime. Yet initiation of an all- out surprise attack would depend on substantial confidence that thousands of re-entry vehicles launched in carefully coordinated attacks - from land, sea and air - would knock out all their targets thousands of miles away, with a timing and reliability exactly as predicted, before the other side launches any forces to pre-empt or retaliate and with such effect that retaliation would not produce unacceptable damage. Any miscalculation or technical failure would mean national catastrophe.''

4. These considerations make the risks from undertaking a ''first-strike'' attack on fixed land-based missiles massive. But in addition must be considered mobile systems such as the 333 SS20s which the Soviet Union has so far deployed, and the very large submarine-based missile forces of the US and USSR, which are virtually invulnerable to any pre-emptive attack. In these circumstances an attempt at a ''first-strike'' attack could bring not just national catastrophe but national suicide.

5. A ''first-strike'' attack would be incompatible with NATO's defensive strategy; the Alliance has pledged never to use any of its weapons in Europe, except in response to attack. NATO threatens no-one.

II. The siting of accurate weapons in Europe with short flight times.

6. The Soviet SS20 missiles are examples of the highly accurate weapons which would be required for a threatened first strike attack. The Soviet Union has deployed over 200 SS20s which are within range of Western Europe, each with three warheads; NATO is due to deploy 464 Cruise and 108 Pershing II missiles in Europe starting in late 1983, in the absence of concrete results in the Geneva arms control negotiations; each of these has a single warhead. Apart from the considerations in para 1, the numbers of Cruise and Pershing, their limited range and the slow speed of cruise missiles make them quite unsuitable for any form of ''first strike'' attack. These factors were a consideration in the NATO

decision to deploy them; it was intended that they should be clearly deterrent and defensive rather than aggressive systems.

7. The flight time of the Pershing II - approximately 14 minutes (not the 6 minutes claimed by the Soviet Union) - is certainly short. But the flight times of SS20s are of the same order. The shortness of flight time could be destabilising if a ''first strike'' was a viable risk or if either side had a ''launch-on-warning'' policy (see para 1 and 5). NATO has not adopted a launch-on-warning policy in response to Soviet deployments of SS20s since 1977; and there are no grounds for the Soviet Union doing so because of the much smaller planned deployments of Pershing II.

8. The accuracy of Cruise, Pershing II and SS20 missiles does not make a ''limited'' war a risk either. There is no possible guarantee that a ''limited'' war would not escalate, while the Soviet Union has made clear that any NATO missile landing on Soviet territory will be considered as having been launched from the United States and be responded to appropriately. However, Cruise and Pershing II are intended to make clear that the Soviet Union could not sucessfully fight a limited war in Europe using its SS20s, without the US being prepared to become involved. They are not to fight a war, but to prevent one starting in the first place.

III. The likelihood of accidents when tension is high.

9. The Cuban missile crisis of October 1962 demonstrated the need to prevent nuclear war happening by accident, misunderstanding or miscalculation. Accordingly in 1963 the US and USSR agreed to establish a direct communication link (the ''Hot-Line Agreement''). This was a limited but practical step to control the perils implicit in modern nuclear weapons systems and one which has proved its worth. It was used during the Arab-Israeli wars of 1967 and 1973 to prevent misunderstanding. In 1971 a further agreement was signed to improve the link, making use of the greater reliability made possible by advances in satellite communications technology.

10. During the SALT talks, the US and USSR reached a further ''Agreement on Measures to Reduce the Risk of Outbreak of Nuclear

War''. This covered three main areas:

i. A pledge by both sides to take measures each considers necessary to maintain and improve its organisational and technical safeguards against accidential or unauthorised use of nuclear weapons;

ii. Arrangements for immediate notification should a risk of nuclear war arise from such incident, from detection of unidentified objects on early warning systems, or from any accidental, unauthorised or other unexplained incident involving a possible detonation of a nuclear weapon;

iii. Advanced notification of any planned missile launches beyond the territory of the launching party and in the direction of the other party.

11. Further, in 1973 an agreement on the Prevention of Nuclear War was reached between the US and USSR; the main areas covered by the agreement are the general conduct of both countries both towards each and towards third countries, and mutual consultation in the event of the risk of nuclear confrontation.

12. The UK and France also have bilateral agreements with the USSR specifically intended to prevent the outbreak of accidential nuclear war, and have ''hot lines'' for communications.

IV. The likelihood of increased dependence on computer systems to launch on warning.

13. All complex detection systems can produce ambiguous data, and early warning systems are no exception. However, highly trained personnel are constantly on watch to evaluate such data and cross checks would be made with other systems. Also, the decision to use nuclear weapons would have to be taken at the highest political level. They could never be used automatically in response to an early warning system alone.

14. Neither the US or the UK has a policy of launching nuclear weapons purely on early warning evidence, nor do we need any such policy; this is one of the many advantages of having strategic

deterrent weapons at sea in submarines, which are virtually invulnerable to attack.

V. Risk of nuclear war less than it was 20 years ago.

15. Since the Cuban missile crisis of 1962, there has never been an occasion when the use of nuclear weapons has been remotely likely. Deterrence has not been an attractive way of keeping the peace, but it has worked. The availability now to both sides of an assured second strike capability in invulnerable submarines, the agreements on preventing nuclear war by accident or miscalculation, the existence' of a broad parity between the superpowers at the strategic level, and an awareness of the consequences of the use of nuclear weapons have all contributed to a lowering of the risk of nuclear war. This is supported by independent experts (eg IISS). In addition, the West has now made major proposals aimed at both reducing the number of nuclear weapons held by both sides and further reducing the risk of war. These include:

i. reducing strategic ballistic missiles over a half, with particular emphasis on the most destabilising weapons;

ii. eliminating the most threatening weapons in Europe (long-range INF missiles);

iii. strengthening East/West confidence building measures (e.g. extension of notification of test missile firings).

16. The Soviet Union appears to have accepted the concept of reductions so the way is clear for a meaningful dialogue aimed at preserving peace at lower levels of forces on both sides.

VI. Risk of nuclear weapons proliferation.

17. Preventing the spread of nuclear weapons to further countries is essentially a political problem which must be tackled by diplomacy and international cooperation. There are now 117 parties to the 1968 Non- Proliferation Treaty (NPT). International efforts to prevent the spread of nuclear weapons in recent years have concentrated on making the safeguards system of

the International Atomic Energy Agency (IAEA) more effective. As the Director of the IAEA has pointed out, there has been an impressive drop in the number of states with an overt nuclear weapons capability: 3 in 1945-55, 2 in 1955-65, 1 in 1965-75 and none in 1975-82.

18. Proliferation is more likely to occur in states which remain outside the NPT. The relatively few nuclear facilities which are not covered by IAEA safeguards agreements are in India, Israel and South Africa, none of which is a party to the NPT. Present concern about an ''Islamic bomb'' is based on the fact that Pakistan, a non-party to the NPT, is developing unsafeguarded facilities for uranium enrichment, although it has given repeated assurances that its nuclear programme is for peaceful purposes only.

19. There is no justification on deterrence grounds for a non-aligned non- nuclear weapon state (NNWS) to develop a nuclear weapons capability, since none of them is threatened by a nuclear weapon state (NWS). At the first UN Special Session on Disarmament in 1978 all five NWS (Britain, France, China, US and USSR) gave assurances about the security of NNWS against the threat or use of nuclear weapons.

20. The establishment of a nuclear-weapon-free zone (NWFZ) can contribute to non-proliferation and regional stability in areas where nuclear weapons are not already deployed. The 1967 Treaty of Tlatelolco setting up the Latin American NWFZ has been brought into force in 22 countries, although not yet in Argentina, Brazil, Chile and Cuba, which are non-parties to the NPT.

HEALTH PLANNING

1. There is no doubt that a nuclear attack on the United Kingdom would have horrific consequences. The over-riding necessity is to prevent such an attack from taking place. While nuclear weapons exist the only reliable defence against nuclear attact is for Britain and the NATO alliance to have a credible deterrent force. Ten successive governments in Britain have followed a policy of deterrence. The risk of massive retaliation deters either side

from using nuclear weapons.

2. Although the likelihood of war remains extremely remote, it would be wrong and irresponsibile for the Government not to make provision for the care of the survivors of an attack, the extent of which no-one could predict. It is uncertain what form a nuclear strike would take and what the precise effect on towns and cities would be. Much would depend on the type of attack - ie ground burst or air burst, time of year, time of day - there are too many variables. However, what can be predicted with a high degree of certainty is that there will be suvivors.

3. The 1980 UN study on Nuclear Weapons stated in paragraph 276:

> ''Unless it was presumed that the attacker's objective was to kill as many civilians as possible, however, civil defence could help substantially to lessen the consequences of an attack and to ameliorate conditions after it. Thus, civil defence is warranted by humanitarian concern, notwithstanding the doubts of its capacity to deal with all situations.''

4. The prime responsibility of the National Health Service, doctors and all members of the caring professions is to look after the sick and the injured, through whatever cause. In this context the value of medical preparations for the casualties of war was established in the 1939-45 conflict. The DHSS and the NHS are always willing to discuss plans which are currently being drawn up by the health service Emergency Planning Officers. The DHSS supports full and open discussion. Its own advice, which is currently under revision, will be put through a full consultation process before it is published. Health Authorities already undertake most, it not all, of the activities advocated by the MCANW in the resolution of its Policy Conference on 13/14 November 1982.

The leaflet on deterrence has not been included because of limitations on space. It covers such topics as the tripwire concept, mutual assured destruction, flexible response and U.S. countervailing strategy.

EDITORIAL NOTE

The carefully prepared note from the Foreign and Commonwealth Office has addressed each of the factors contributing to the increasing risk of nuclear war listed in the previous letter with the exception of (4) 'The mental state of weapons operatives particularly in relation to hard drugs and alcohol'. This problem is given special attention in the following paper on 'Human Fallibility' by James Thompson.

Despite the care with which the other five risk factors were dismissed readers cannot but help be impressed by the skill with which the Foreign and Commonwealth Office describe the risk of nuclear weapons proliferation. (VI para 17). "As the Director of the IAEA has pointed out, there has been an impressive drop in the number of states with an overt nuclear weapons capability: 3 in 1945-1955, 2 in 1955-1965, 1 in 1965-1975 and none in 1975- 1982."

This passage has been translated by a Ministry spokesman Sir Humphrey Appleby, so that it can be more easily understood.

"As the Director of the IAEA failed to point out there has been an impressive increase in the number of states with overt nuclear weapons: 2 in 1945-1955, 3 in 1955-1965, 4 in 1965-1975 and 5 in 1975-1982. In addition the number with covert nuclear weapons capability is increasing yearly with India, Israel, South Africa, Pakistan, Argentina, Brazil, Chile and Cuba high on the list".

The Ministry spokesman has also translated the phrase "high-level of collateral damage" (I para 2). This means millions of dead civilians.

C.A. COUNSELL

THE THREAT

AND

THE REALITY

OF NUCLEAR WAR

HUMAN FALLIBILITY IN THE CONTROL OF NUCLEAR WEAPONS

Dr. James Thompson, Chris Cull,
Adela Erskine, Ursula Haug and Alison Roper-Hall

Introduction

No human enterprise can ever be infallible, though hope may make it seem so before the event. Being human, we all make mistakes, the impact of which will depend on their context. Arbours and Karrick (1951) define an accident as 'an unplanned event in a chain of planned or controlled events'. While there is a large human involvement in the management, control and maintenance of nuclear weapon systems, it is inevitable that mistakes will happen. This problem is increasing for the following reasons:-

1. More countries are developing their own nuclear weapons.

2. The major nuclear powers together have enough megatonage now to reproduce the Second World War once a day for 16 years.

3. In spite of this overkill, they are continuing to increase the size of their nuclear arsenals.

4. They are also developing more sophisticated and efficient weapons, which possess a first-strike capability. With the consequent pressure to 'launch under attack', the likelihood of a false alarm, or an accidental missile launch becomes more likely.

It should be remembered that the U.S. Department of Defense has conceded that there have already been over 30 major accidents in western forces alone, and it is probable that a like number have occured to Warsaw Pact forces.

We have chosen to explore the notion of fallibility within the following framework:

I. Political-executive decision making.

II. The military organisation.

III. The individual as a member of nuclear personnel.

IV. The flow of information between and within these groups.

Before moving on, we would just like to say that it is beyond the scope of this presentation to explore the methodological problems involved in a psychological approach to these issues. At present, we, like other behavioural scientists, have had to rely on extrapolating from social and cognitive psychology, and historical data. We are convinced of the value of this approach, although at the same time, we are aware of its limitations.

I. POLITICAL – EXECUTIVE DECISION- MAKING

Let us now turn to the first area of executive decision-making. The politicians are ultimately responsible for the deployment of nuclear weapons. We cannot hope to understand their decision-making processes unless we first comprehend the social context in which decisions about nuclear armaments are reached. In a recent address, the social psychologist Morton Deutsch described the system of superpower international relations as a "malignant social process".

"The superpowers are involved in a crazy social process, which, given the existence of nuclear weapons, is too dangerous to allow to continue. Perfectly sane and intelligent people, once they are enmeshed in a crazy social process, may engage in actions which seem to them completely rational and necessary, but which a detached, objective, observer would readily identify as contributing to the perpetuation and intensification of a vicious cycle of interactions." (1).

Deutsch defines such a process as one: "which is increasingly dangerous and costly to the participants and from which the participants see no way of extricating themselves without leaving themselves vulnerable to an unacceptable loss in a value central to their self-identities or self-esteem".

Some characteristics of such processes are:

1. being involved in an anarchic social situation.
2. a competitive orientation to one another.

3. cognitive rigidity within the parties.
4. misperceptions.
5. unwitting commitments.
6. self-fulfilling prophecies.
7. vicious escalating spirals.

Anarchic social situations have been explored in experimental laboratory games of trust and suspicion (2). The essential psychological point is this: when there is not trust that the other side will "play by the rules", there is no possibility that either party will behave rationally.
Distrust leads to competition and attempts by each side to achieve maximum gain at the expense of its opponent. Yet only co-operation can secure the most favourable outcomes. A key example here is the havoc that mutual suspicion has wrought on the Soviet-American disarmament talks over the years.

Competitiveness between the superpowers is usually explained in terms of incompatible ideologies: capitalism versus communism. However, a number of workers have pointed out intriguing "mirror-image" aspects of the views of leading Soviet and American analysts. As Milburn et al point out:

"All believe that the leadership of their major adversary is monolithic and that there are essentially no differences among members of the ruling class of their opponents... Those on the ideological right in both countries argue for the obstinate, stubborn immutability of their imperialistic opposite number..." (3).

Over twenty years ago, Urie Bronfenbrenner wrote a paper exploring similar "mirror-image" views among ordinary Russians and their American counterparts. (4). He utilises three social phenomena to explain such rigid and distorted perceptions.

1. The cognitive dissonance literature (for example Festinger (5)) provides ample evidence of the powerful "strain to consistency" in social relations. This happens through our tendency to reduce life's inconsistencies and complexities to the simplest frames of reference; for example, "goodies and baddies". Such cognitive rigidty is especially strong under conditions of stress.

2. These mechanisms are reinforced by the pressure to social conformity typified by the famous "Asch phenomenon" (6).

3. To add to the possible distortions one side's misperceptions of the other can result in a self-fulfilling prophecy. That is, the other side are likely to respond in a way that appears to justify the original misperception. Such self-fulfilling prophecies help to perpetuate a freeze in super power relations.

We would like to illustrate this with the following topical example: in an atmosphere of international suspicion, Superpower A announces an increase in its nuclear arsenal. Superpower B reciprocates by announcing that it will add to its arsenal to prevent A "getting ahead". This move then reinforces A's suspicion of B's imperialistic intentions. This situation is similar to the familiar one encountered in clinical practice in which the wife asserts "I shout at him because he never talks to me" and the husband replies "I don't feel like talking after she's shouted at me". The essence of this misunderstanding is that both parties identify different starting points. They both feel entirely in the right because the apparent sequence of events seems to justify their interpretations, but any outsider can see that they are locked into a vicious cycle. Over the last ten years, a new area of psychological research has grown up around the notion of psychological entrapment: our capacity to persist in plans which are clearly failing (7). Experimental work has investigated the factors which determine whether people decide to persist in a failing course of action, or cut their losses. One model, (8) suggests that paradoxically, the strength of the tendency to persist is directly proportional to the perceived magnitude of losses already incurred. This may throw some light on the conduct of both Argentina and Great Britain at different stages of the recent conflict.

In times of conflict, politicians tend to make decisions in small war cabinets. Groups, as we know, can be fallible in distinctive ways. The peculiarities of group political decision-making have been explored by the psychologist, Janis, who in 1972 made case-studies of various historical crises and identified six symptoms of "Group-Think", that contribute to faulty decision-making processes: (9)

1. An illusion of invulnerability that becomes shared by most members of the group.
2. Collective attempts to ignore or rationalise away items of information challenging shaky but cherished assumptions.
3. An unquestioned belief in the group's inherent morality.
4. Stereotyping the enemy as either too evil for negotiations or too stupid to be a threat.
5. A shared illusion of unanimity in a majority viewpoint.
6. Self-appointed 'mind-guards' to protect the group from adverse information.

II. THE MILITARY ORGANISATION

The effects of "Group-Think" can be applied equally well to the decisions of military staff commanders. Indeed, everything we have said about political decision-making is applicable to military decisions.

Military bureaucracy, however, has its own peculiar social structure. For militarism has become synonymous with complex systems of rewards and punishments designed to foster conformity. These include:- the rigid dominance-submission hierarchy; the concern with discipline, over learned drills and codes of honour; the macho anti-intellectual image; and extreme sensitivity to criticism.

One investigator into the psychology of militarism Professor Dixon, has analysed the careers of numerous successful and unsuccessful military commanders (10). Three qualities of decision-making appeared to characterise the most successful; (success implies both cool-headed brilliance in strategic planning and humane leadership).

1. The ability to tolerate uncertainty.
2. Spontaneity of thought and action.
3. Keeping minds open to novel and perhaps threatening stimuli.

The problem as Dixon analyses it, is that these cognitive qualities are totally at odds with the ethics of militarism as described above.

There is an even more sinister dimension to military conformity.

As Stanley Milgram has pointed out, it encourages an unquestioning compliance with orders. This was the theme of his famous electric shock studies in the 1960's, in which two thirds of normal subjects were willing to administer electric shocks of apparently fatal voltages to another person under the direction of the experimenter. From these he concluded:

"This is perhaps the most fundamental lesson in our study: ordinary people, simply doing their jobs, and without any particular hostility on their part, can become agents in a terrible destructive process." (11).

Milgram wrote against the background of the Vietnam War atrocities such as the My Lai massacre. But his conclusion is just as valid in connection with the possible military use of nuclear weapons.

As the military machine becomes even larger and more complex there will inevitably be greater opportunities for mis-information and mis-communication between different levels within the military hierarchy. The greatest problem is one of upward transmission, particularly when errors need to be reported. The reliability of information flow can also be adversely affected by factors such as personal beliefs, rigid world views, and concepts of loyalty.

III. THE INDIVIDUAL AS A MEMBER OF NUCLEAR PERSONNEL

We would now like to turn to human fallibility as it relates to the individual within nuclear personnel.

A large number of factors, or stressors, can affect an individual's perfomance. In addition to stress produced by the demands of the task in hand, one also has to deal with other environmental information, such as noise, illumination and temperature.

These will, in turn, interact with an individual's cognitive appraisal of the situation, and his subjective mood, which of itself can be an important factor in performance. The subjective state can be modified on a transient basis by the ingestion of psychoactive drugs and alcohol, which also have direct effects on

task performance, (Hindmarch, 12). More long term and continuous effects, e.g. mood changes, feelings of boredom, restlessness and irritability can be induced by conditions of reduced environmental stimulation, such as social and perceptual deprivation (13,14). Such conditions are of particular relevance to those military personnel involved in nuclear weapons control, given the increased reliance on automated equipment, which is monitored - either in the restricted environment of a submarine, or an isolated nuclear station.

In an attempt to counteract the potential consequences of human error, the US Department of Defense operate a screening program of the "stability" of all potential and current nuclear personnel, that is, prior to and during involvement in a nuclear program.

From the table it can be seen that, as a result of this "Personnel Reliability Program", roughly 5,000 military personnel were removed annually, from nuclear duties, from 1975 to 1977, out of a total of approximately 120,000 service personnel, an annual rate of some 4.2%.

Number of Personnel Removed Annually

Reason	1975	1976	1977
Alcohol Abuse	169	184	256
Drug abuse	1,970	1,474	1,365
Negligence or delinquency in performance of duty	703	737	828
Court martial or civil conviction s	345	388	350
Behaviour or actions contemptuous of the law	722	945	885
Significant physical, mental or character trait or aberrant behaviour, medically substantiated as prejudicial to reliable performance	1,219	1,238	1,289
TOTAL	5,128	4,966	4,973

Reasons for removal included drug and alcohol abuse - even while on duty. The primary drug abused was marijuana. But in 1977, more than 250 personnel had used drugs such as heroin and LSD (15). Other reasons included negligence, deliquency, convictions - both civil and military, and mental disturbance.

It is highly likely that many more personnel are not screened out by this procedure. In certain cases, staff shortages have inhibited the removal of psychiatrically disturbed individuals, (16). It has also been reported that there is some difficulty in attracting and keeping nuclear personnel.

The above figures suggest that the initial screening procedure may be very inefficient. Alternatively, or in addition, the stresses that are part and parcel of such work could be a contributing factor. Either way, with such potentially devastating weapon systems, we cannot afford to take such chances.

The data we have presented are for the United States. As yet we have not come across similar data for other nuclear weapons countries, nor do we know what, if any, types of screening programs are currently in existence elsewhere.

IV. THE FLOW OF INFORMATION BETWEEN AND WITHIN THESE GROUPS

A further danger is that of false alarms. Between December 30, 1978 and June 30th, 1980 serious false alarms within the North American Air Defence Command numbered 147. This comes from a Congressional Report, quoted in the International Herald Tribune, 30th October, 1980.

These can arise from technical errors, but have also been the result of practical jokes, hoax messages and accident. We would like to give one example, quoted by Dumas, of a Minuteman crew who played a practical joke by recording a launch message and playing it when the next shift came to relieve them. It is quite feasible that such dangerous "pranks" are one means of relieving the boredom and monotony of their working conditions.

In summary:

ROUTES TO AN UNPLANNED NUCLEAR EXPLOSION

1. Signal detection
2. Communication with decision makers
3. Response selection
4. Communications with executors
5 Execution of command a) warhead assembly b) vehicle readiness c) Targeting 6. Maintaining all systems
7. Guarding all systems

On the basis of what is known about human fallibility it is possible to outline a likely scenario for a major nuclear accident.

ANATOMY OF AN ACCIDENT

1. Superpowers in a state of tension
2. An ambiguous military event or error causes a high state of alert
3. Readiness is maintained whilst negotiations continue inconclusively
4. Partial reduction of the state of alert is agreed. Decision makers are tense, and under pressure not to give way, command crews are highly aroused and emotionally exhausted
5. A second error occurs

We would like to leave you with the following thought, again, from Dumas:

> "As nuclear weapons systems become more sophisticated, technical and human errors may cause disasters".

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MEDICINE AND RISK ASSESSMENT

Dr. Stewart Britten

SUMMARY

After a brief outline of the procedures used in the assessment of risk the cas is made for the validity of comment by members of the medical profession o risk assessments, both from the collective body of medical knowledge build u over the last two centuries on the detection of risk and from their ow contact with three areas of reality. These are the reality of the clinician' liability to error, and that of every risk assessor; the reality of huma fallibility and pathological motivation as potential causes of disaster, an the reality of injury and death.

Despite the fact that the attitudes of the public to risk are often considere by decision makers and risk assessors to be irrational, public concern ha played a large part in risk control. Yet where the risks of war and of nuclea weapons deployment are concerned the public has no say, despite the axiom accepted for civil life, that those who are to bear a risk should have powerful say in what risks they are to bear. Nor does the Ministry of Defenc give any evidence that it has taken adequate steps in assessment of the risk of deploying nuclear weapons. The medical profession is well fitted to th task of watchdog on nuclear weapons risks.

In 1775 the London surgeon Percival Pott published his observation that chimney sweeps were peculiarly liable to develop cancer of the scrotum. This he attributed to soot, with which as boys the sweeps had been covered as they climbed up inside chimneys (1). That was the first identification of a population at greater than normal risk from a carcinogen - and indentification of a risk is the first stage of risk assessment. Since then the acumen of individual clinicians has been greatly augmented by epidemiology.

Non-medical risk assessment as a formal, interdisciplinary procedure is a child of the post-war period, and has come into its own and burgeoned only in the last 20 years or so. Its main thrust is towards detection of risk at its point of origin, that is, before a new substance comes onto the market or before an industrial plant goes into operation.

I want to set out why even the clinician, such as myself, has a valid comment to make on risk assessment both from his daily experience and from the accumulated body of medical knowledge to which he is heir. But first a few words about the growth, methods and shortcomings of risk assessment.

The pattern of the last 20 years, in Britain at least, has been that individual failures to protect the public from hazard have been given brief, but prominent, coverage by the news media, and new safety bodies have swiftly been brought into being. New laws, the Medicines Act 1968 and the Health and Safety at Work Act 1974, and new regulations under existing laws have laid down a principle - that the assessment of risk, whether it be from an industrial plant or a new chemical for household use, is the responsibility of the generator of the risk. A second responsibility lies with the government regulatory body; on the basis of the company's risk assessment it must evaluate the risk, that is, weigh it against the likely benefits, and if the benefits predominate, decide what safety measures are necessary.

The job of the risk assessor is, therefore, circumscribed. He is employed to assess a risk, and he must serve the interests of his company. He must try to satisfy the regulatory body, but his assessment should stop short of evaluation, which is the domain of the government body.

As for the means of assessing risk, first the assessor calculates probabilities from rates of death and injury. Then, in the case of machine plant, he carries out a fault tree analysis, in which the probability of failure of each part of a complex system is calculated and potential accident paths are mapped. More precisely, he assesses the fault tree built up by engineers throughout the design and development period. Lastly there is "human factors analysis", which has evolved out of ergonomics and has the main purpose of predicting human error and estimating its probable frequency in each task in an industrial process.

These developments no doubt greatly reduce risks of death and injury. But even valuable innovations may introduce their own hazards. Risk assessors tend to set a high premium on numerical calculation of probability, but much of their supposedly "hard" data contains an element of judgement, the extent of which may be outside the awareness of the assessor himself, let alone of the evaluator. Such exercise of judgement might be the use of one assessment method rather than another or the exclusion of a particular factor from consideration. Lord Rothschild has given an example of subjective judgement disguised as numerical calculation. In his 1978 Richard Dimbleby Lecture he put the risk

of an aerial attack on a nuclear reactor at between one in 100,000 and one in a million, presumably per reactor year (2). Since then two successful aerial attacks have been made on nuclear reactors, albeit neither of them containing nuclear fuel, and anyone now inclined to make such a "guesstimate" would be well advised to inform himself on international crises, the mental health of national leaders, security of fighter bombers and international terrorism.

The risk assessor or evaluator may so prefer supposedly reliable "hard" data and may so abhor uncertainty that he may be in large measure unaware of the subjective part of his judgements. This is a hazard to which everyone is to some extent prone. It introduces the danger of unwarranted certainty. The commonsense principles which people use in assessing risk have been set out elsewhere (3) and, important as they are as sources of error, I shall not go into them here. Suffice it to say that there is particular scope for error of judgement where the probabilities of rare events or of events that have never occurred are at issue. Into this category fall nuclear weapon accidents, unauthorised launch and unintended war.

A second danger emanating from the risk evaluator who considers himself exclusively rational is that he is likely to assume that other people are rational too, and this may lead him to exclude from scrutiny much of human error and pathological motivation. In its assessment of the risks of major accidents at Canvey Island on the Thames Estuary, the biggest collection of oil refineries and liquid natural gas storage tanks in Europe, the Safety and Reliability Directorate of the UK Atomic Energy Authority excluded terrorism (4). This was done explicitly, but it is food for thought that the UK's foremost assessor of major hazards so excludes from consideration what are probably the most serious sources of risk.

Be that as it may, what knowledge has a medical practitioner, whether individual or collectively held, from which he may presume to comment on the work of risk assessors, many of whose skills are beyond his ken?

First, in the two centuries since Percival Pott medical workers have learned that a source of risk may be obvious once identified

can initially escape detection for generations, though under our noses. Second, we know that causal factors may not manifest their effects for half a lifetime, whether those effects be cancer or psychosis. This being so, we are disinclined to pronounce any possible source of risk to be absolutely controlled. Who can then respect the judgement of defence secretaries who have repeatedly maintained that nuclear deterrence has worked for 35 years, when that statement includes the supposition that nuclear weapons are safe?

Drawing more on individually acquired experience, every clinician has daily to make decisions on insufficient evidence, and these decisions are therefore largely based on judgement. This is a condition which medical practitioners share with risk evaluators. Where our work may differ from theirs is that our patients come back and prove us wrong (perhaps I should speak only for myself here) so often that we would have great difficulty in maintaining an unjustified confidence in our diagnoses, treatments and prognoses. Do risk assessors and evaluators have such constant feed-back, with such frequent reminders of their fallibility?

Our fallibility confers a further sense of reality. Doctors are aware of the possibility of their making errors of judgement, such as misdiagnosis which will have a detrimental effect on patients health. This gives us a very personal awareness of human fallibility, and we are not inclined to overlook the probability that other people will make mistakes too.

Lastly, doctors and nurses are in daily contact with fatal illness and with death. This experience enables us to see beyond the figures for injuries from a nuclear strike. We can see full-thickness burns, crush injuries and wounds from flying glass. Risk for the non-medical assessor or evaluator may become as two-dimensional as the page which bears the calculations of injury rates. The assessment only becomes three-dimensional, flesh and blood, by acquaintance with the effects of realisation of the risk. This three-dimensional risk has been called the "severity" of the risk and defined as the product of the probability and effects of its realisation (5).

Why medical people can speak and should speak about risk assessment can be summed up as contact with reality - the reality

of our proneness to error of judgement, and that of every risk assessor; the reality of human fallibility and pathological motivation as potential causes of disaster, and the reality of injury and death.

What about the population at risk? In 1976 the Council for Science and Society made a recommendation which summarises a guiding ideal of our times, namely that "those who are exposed to risks which are not immediately obvious to them should have a powerful voice - expressed responsibly and on full information and sound advice - in deciding what risks to be exposed to" (5, p. 54). I called this recommendation an "ideal", but many people would not. When a decision is to be made involving risk to the community or to the whole nation, allowing the public to have "a powerful voice" can prove troublesome. Many of those who specialise in risk evaluation leave no doubt but that they regard public participation as at best a necessary evil. True, the public often seems to have little regard for the skills and labours of risk assessors. But I consider the assessors to be wrong when they ascribe any difference from their numerical risk assessments, based on rates of accidents that have taken place so far, to public irrationality. It seems more to be the case that the public is largely uneducated on risk, or miseducated thanks to sections of the news media which give undue prominence to newsworthy accidents and little to the commoner ones. Despite this, we have public concern largely to thank for some of our most progressive steps in hazard control.

To illustrate, risk specialists often bewail the fact that the public is alarmed by a single accident which causes many deaths, but fails to heed the steady toll of deaths on the roads and in homes. The following table, taken from a compilation of recent British risk data made by the Safety and Reliability Directorate of the UK Atomic Energy Authority, shows the risk to the individual of death in accidents at work, per year and per million, as measured by death rates (6).

Year	1971	1972	1973	1974	1975
Individual Risk	36	34	36	32	30

In 1974 it can be seen that there was a slight drop in the number of deaths. Yet this was the year of the explosion of a chemical plant at Flixborough, which killed 28 people. There was public alarm, and if the figures are the final arbiters of rationality, the public reacted "irrationally". But Flixborough led directly to the setting up of the Advisory Committee on Major Hazards, and public concern probably played a large part in that step forward.
So far I have talked mostly about civil risks. Risks of war and of the implements of war are regarded quite differently. To count the cost of defending national sovereignty or a matter of principle is apparently seen as paltry. When by chance they come to war risks, it seems that risk assessors do not know what to do with them. For example, in its second report the Advisory Committee on Major Hazards published a table showing major releases of chlorine. The maximum number of deaths from any one of these releases was 60. In a footnote the committee added that 168 tons of chlorine were released along a seven kilometre front near Ypres in 1915 killing, according to the highest estimate, 5000 Allied troops (7).

Putting our young men under extreme risk in war is, of course, generally accepted, and in Word War One 20 servicemen were killed to every civilian. In World War Two, though, the ration was one to one, and in Vietnam there were 20 civilian deaths to every combatant (8). Any war in which nuclear weapons are used, even those with low yield and high accuracy, will show a much greater ratio of civilian to military deaths. I repeat the axiom: "Those who are exposed to risk ..... should have a powerful voice .... in deciding what risks to be exposed to."

Yet it is precisely on this most severe of risks that the public has had no say whatsoever - though the coming general election will change that. Indeed, "in the national interest" (9) all information on nuclear weapon accidents and assessments of risk is classified, though the US has not found it necessary to adopt such stringent secrecy.

Doctors and nurses are, of course, involved in plans for rudimentary health care after a nuclear strike. If there are to be any such plans, and I am not speaking for them, the extent to which skilled manpower is to be diverted from needy peacetime services in order to elaborate plans and train people to carry

them out can only be based on risk assessments, and these will differ from area to area. To make emergency plans without area risk assessments would be a nonsense - as though the Thames barrier had been built with no calculation of tides and rainfall.

The Ministry of Defence is not even willing to demonstrate, as companies operating major hazards installations have been instructed by another government body to do, that "it has the appropriate safety philosophy" ... and that it "uses a selection of techniques for the recognition and surveillance of hazards, appropriate to its particular problems" (10). There is a body, the Nuclear Weapons Safety Committee, set up to examine "weapons production and deployment plans and advise the Secretary of State for Defence on any aspects which may have safety implications" (11). It is not an independent watchdog, as is required where civil risks are concerned, and as of 17th December 1981 it had not met for three months (9). If this is the average interval between meetings, can the committee discharge its functions in a remotely adequate manner? In an age in whuch the preconstruction safety data on a nuclear reactor run to 50 volumes, I think not.

When the watchdog apparently spends so much time curled up in its basket, an animal with a rather louder bark is needed. In the two centuries since Percival Pott's observation on cancer in chimney sweeps, as each pathogen has been newly identified medical workers have made its attendant risks known both to the people at risk and to those such as employers and government bodies who had power or responsibility to reduce the risk. The case is no different now that we are faced with the risks engendered in deploying nuclear weapons. It is our business to proclaim the risks to health and life, just as in the cases of asbestos and lead in petrol, and to make known the results if those risks are ever realised.

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PSYCHOLOGICAL EFFECTS OF LIVING UNDER THE THREAT OF NUCLEAR WAR

Professor Horst-Eberhart Richter

According to opinion polls in the United States and several Western European countries, large portions of the population assume that a great war could break out in the foreseeable future and of these people most expect it to be a nuclear war. There are vague but widespread notions about what sort of devastation this kind of warfare would cause. Nevertheless, it appears on the surface that most people are not particularly upset by these thoughts. Psychologists and psychiatrists are often asked whether this surprising impression is the correct one or whether there are more profound psychological reactions. Since the 1950's, this problem has been repeatedly examined by experts, and I am able to use their findings and conclusions to support my own views. However, in this paper I do not want to simply confine myself to tracing the reasons why many people apparently accept the growing threat of nuclear war with a peculiar kind of passivity or even partly with hopeless resignation. To limit my discussion in this way would mean that I, as a scientist, was also indirectly resigning myself to accept this passivity. Instead, we must ask ourselves: "What could happen, or what would have to happen, in order to change these apathetic reactions? And what could move people to actively involve themselves in averting this danger?" I will return later to this second question.

It is true that the psychological effects of the threat of war differ from one nation to another. Yet there are obviously common patterns of reaction, patterns which differ only in degree. Among the populace of the Federal Republic of Germany, the most recent opinion polls reveal a growing general pessimism. At no other time in the last three decades has this pessimistic mood been so marked as it is today. That this mood is closely related to the increased fear of war can be concluded from the fact that in the last few years another World War has been viewed more and more as a real possibility. In fact, a third World War appears possible or probable to 48% of the West Germans. Young people have

especially negative views of the future. Every other young person between the ages of 18 and 24 expects that the world will be destroyed by nuclear war.

But why does this oppressive nightmare remain, for the most part, unspoken? Obviously many people consider it useless to try to exert any influence on today's calamitous political developments. Most citizens are convinced that their ideas, wishes and fears are not considered or even heard any more by the politicians. 78% of the West Germans agree with the view that most politicians simply do not know what ordinary people are thinking. Among younger people, this percentage actually rises to 86%. Of course it is demoralizing to feel that one is the helpless object of political decisions. These facts reveal a social-psychological state of affairs which seem to bear little resemblance to most ideas about the function of a representative democracy.

Of course, in recent years the signs of disquiet have increased - not only in our country but in many others as well. One expression of this disquiet is the "peace movement", which is gaining more or less attention not only in the West but, more recently, even in the German Democratic Republic. Without making a close comparison with similar movements which appeared in Western Europe during the 1950's, I would like to examine somewhat more closely the social- psychological processes which accompany the present peace movement, at least in our country.

The peace movement and the conflicts which it evokes are symptoms of a process of social disintegration. We must assume that the pessimism uncovered by the opinion polls is giving rise to tensions which can no longer be collectively held in check. Fear and outrage are now being openly expressed among elements of our youth. However, these protesting young people are only channeling the pressures which burden all of society. The youth fall into this role because they have an especially fine sensitivity (typical for their age) for social conflict, because they react more impulsively than the older generation, and because they are especially sensitive to anything that endangers their future. Aftr all they have the longest future before them. This uniquely youthful readiness to react makes it possible for a great part of the older and more established generation to split off their fear and to some extent project it onto the young people, who then

articulate their discontent through the protest movement. In turn, the delegation of this fear helps the older representatives of the established society defend their threatened self-reliance. Their conflict with the fears of young people enables them to repress their own anxieties. It is similar to the situation of a family burdened by conflict, where the parents conceal their worries from the children, who meanwhile react with dramatic symptoms. Instead of clearing up the conflicts, the parents try to discipline their offspring, which in the end only intensifies the problem. Similar irrational processes characterize the present arguments about the peace movement in our country. The mostly youthful groups within the peace movement have a hard time organizing their alarm and outrage in a relevant way. They find themselves suspected, abused and discriminated against by their opponents. Through their irritated overreaction to this challenge, the established elders reveal that they are desperately concerned about keeping their own fears hidden.

The process of social disintegration becomes grave when this fear is suppressed among those who bear the responsibility for political action and when the fear is delegated to a repressed and abused popular movement, which cannot take part in political decision making.

But between these polarized factions is a "silent majority", which becomes temporarily indignant about every conceivable problem, but hardly ever about the possible threat of an atomic war. This majority's frame of mind has been named, described and interpreted in many ways. JEROME D. FRANK mentioned a possible melancholy pleasure in contemplating one's inevitable doom. At the same time, he believed in the significant influence of the mechanism of denial. Like the German philosopher KARL JASPERS, he compared this denial to the inclination of human beings to suppress thoughts of their own mortality. In 1959 JASPERS wrote: "The sick man forgets his cancer; the healthy man forgets that he will die; the bankrupt forgets that there is no escape. Do we have a similar attitude towards the atom bomb...?" Denial apparently occurs because the fear of being unable to bear the thought of nuclear warfare pushes even the fear of the threat itself into the background. Constantly holding this danger before one's eyes would make life unbearable.

Denial appears to provide a temporary benefit to psychic health, although it is irrational in political terms, since it inhibits the powers of resistance against the threat itself. Yet the question remains how this denial is possible at all, considering that we are continually overwhelmed with information about the planning and conception of new weapons of destruction, about the horrifying increases in the military budget and about the headlong rush towards a policy of confrontation.

The opportunity for denial is especially favoured by five factors:

1. Modern weapons of mass destruction appear to have effects so monstrous as to be humanly unimaginable. The horrible becomes abstract and nebulous if it lies beyond what the senses can conceive. Thus, we call anything which could ignite a possible nuclear war "inconceivable", "incredible" or "indescribable".

2. JEROME D. FRANK also mentions the factor of habituation. The fact that we have lived for over thirty years under the atomic threat without anything happening can lead to a deadening of our awareness.

3. There is a widespread, naive belief that something cannot happen simply because it is too unreasonable. To make use of the horrendous and bulging arsenals of overkill-weapons seems to be totally senseless and therefore impossible for this reason alone. In defiance of the lessons of history, there is still the short-sighted assumption that reality could never be entirely senseless.

4. This belief is further nourished by many people's notion that world politics is only continuing the kind of behaviour that all people experience in their daily relationships. ERICH FROMM, for one, gave this as one of the reasons why numerous Jews decided only with difficulty (or too late) to emigrate from Nazi Germany. These Jews kept up their normal personal contacts with most Germans in their neighbourhoods even after Hitler's seizure of power. Thus, it seemed completely unbelievable to many of them that the Nazis could ever carry out their criminal schemes of persecution. In saying this I do not mean to imply that similar criminal policies now exist

anywhere. I refer only to the widespread tendency to judge uncritically what is possible or impossible in politics solely on the basis of one's personal everyday experience.

5. As the fifth and last factor encouraging the denial of the threat of nuclear war, I would like to name the mechanism of displacement of the reasons for fear. This involves an unconscious process, which I will explain with a brief clinical example. A little girl learns that her mother is suffering from an incurable case of cancer. She suddenly has the fear that she may find a dead bird on her way to school. As a result, she does not want to go to school any more, so that she need not encounter this dead bird. This all means that she has diverted her fantasy from the imminent death of her mother and displaced it onto the idea of the dead bird.

This mechanism provides an explanation for the recent preoccupation of many people with anything in the everyday world that could threaten their property and themselves. Never before has so much worry been expended on wholesome nutrition, body weight, blood pressure and medically approved physical exercise. People try to insure themselves against anything and everything. "Striving for security has become a collective obsession!" states the German sociologist JOHANO STRASSER. One senses a feeling of insecurity wherever people imagine they can actively decrease any risks to their own security. These people invent, so to speak, large numbers of dead birds, in order to avoid thinking about the greatest and most sinister danger.

Yet, strictly speaking, the denial achieved by most people is very incomplete. Many see the dangers of atomic war quite clearly. But they hold fast to the notion that only the other side's weapons are menaces. The more warheads their own side produces, the safer they feel. Their own atom bombs seem good and necessary for holding in check the external enemy, who is viewed as the sole aggressor. For various reasons, it is possible to bring about psychic relief by portraying the enemy as a devil. I would like to describe these reasons from the standpoint of a Western man who sees the Russians as demons: By seeing only the Russians as a threat, I have fixed my fear on an object which my mind is able to grasp. The Russians put me in the position of being an innocent victim of persecution. Thus, I personally have nothing more to do

with creating the menace of nuclear war. My moral burden has been lifted.

Moreover, I can partially transform the discomforting fear into hate. I can exchange my passive position for an active one. After all, the Communists in Moscow, who wish to put me in their power, deserve to be abhorred and resisted. Finally, I avoid being an outsider. By fixing my image of the enemy in the East, I know I am in agreement with the rulers of my own nation and can count on their protection at any time.

Of course, the same elements of psychic relief can be found in any communist in the East who views the Americans as devils. Moreover, the same can be said about those dissenting minorities, in the East as well as the West, who see their own leadership as devilish and who idealize the other side uncritically. These are groups who, at least in part, like to think of themselves as part of the peace movement, although this claim is basically unjustified. They distort the truth just as blindly as all the others who can only live with the threat of atomic war by using a sterotyped scapegoat projection as a crutch. In fact, these people have only shifted their allegiance to another party.

The British physicist and one-time naval officer P.M.S. BLACKETT was one of the first to predict that immense nuclear stockpiles would only be tolerated if people were convinced they were protecting themselves from a truly demonic persecutor. His actual words were: "Once a nation bases its security on an absolute weapon, such as the atom bomb, it becomes psychologically necessary to believe in an absolute enemy." The German-born physicist MAX BORN seized on this idea, saying, "To quiet the conscience of human beings concerning military plans which conceive of the killng of tens or hundreds of millions of men, women and children on the other side - and on one's own side, which is not even mentioned - the other side must be viewed as essentially corrupt and aggressive."

This prophetic thought, uttered 22 years ago, has already been fulfilled to a great extent. Large segments of the populace live in a psychic condition which a psychiatrist must call "collective paranoia". I have attempted to demonstrate at length, in one of my books, that all criteria for a persecution complex are in fact

fulfilled:

1. One believes that all measures taken by one's opponent are essentially aggressive in nature.

2. This image of the enemy cannot be corrected. No signal can be acknowledged which might contradict this idea of the totally evil persecutor.

3. Whenever oppostion arises in one's own camp, it will automatically be blamed on the dark, sinister machinations of the enemy.

4. One is just as uncritical in idealizing whatever one's own side does. There can be no doubt that one's own party represents goodness, justice and humanity. The imperialistic and aggressive actions of one's own political system can no longer be perceived.

5. This sense of persecution absorbs one's concentration so much that one is blind to the ways in which one can be endangered by precautions taken against the other side.

Thus, many people let themselves be persuaded that a great war could actually defend certain values or achievements of their own political system, if not for themselves at least for their children and many fellow-countrymen. But they overlook the fact that such a defence will quite probably mean mass suicide, making the idea of defence an illusion.

Tragically, the persecution mentality is now being systematically inflamed by the official deterrent policies of both sides.

It is probably important to explain this relationship. As we know, the governments of both sides start with the assumption that a great war can be prevented by threatening one's opponent at least to the same degree that one's own side seems threatened. One can only make such threats if one can stay in the armaments race. But the weapons alone do no good unless the people themselves are ready, at any given moment, to actually use them. Therefore, psychological armament must keep pace with arms production. If this does not happen, deterrence would be

endangered and - according to this philosophy - peace itself. If either side were to relax its determination to set the apocalypse machine in motion, this could, so the theory goes, trigger aggression by one's opponent. Thus, psychological militarization counts as a decisive element of a credible deterrent.

But lately people have been reading that the total destructive potential exceeds by more than twenty times the amount sufficient for deterrence. And they learn that new, gigantic armaments programs still lie ahead. It is possible that, frightened by this information, people may begin to doubt whether they still ought to sanction the eventual use of these destructive forces. To suppress this doubt, governments must increase their propaganda efforts in order to maintain this collective persecution mentality. Woe unto us, if the dread of atomic war were to overcome the readiness to fight, which means the readiness to commit mass suicide! The credibility of deterrence would vanish.

Precisely this is the paradox of the social-psychological situation in which we now live. We are taught that peace is threatened by the outbreak of a peace- loving attitude. Only a suspicious, hostile attitude can guarantee our security. Since we must assume that this dynamic functions reciprocally on both sides, it is hardly imaginable how the escalation of such deadly risks can ever be halted - unless people can one day release themselves en masse from this induced paranoia.

Yet along with all the obstacles already mentioned, there is a further complication, which makes it even more difficult to heal this paranoia. We must proceed from the assumption that this persecution concept long ago hardened into a kind of philosophy and that most people are not aware of its emotional basis. It is a philosophy based on hatred and mistrust. However, this hatred and mistrust are expressed in concepts and language which have become abstract and technical. The emotional aspect has become practically invisible. Today we speak of peace as if it were only a technical matter, as if it were the automatic result of a certian quantitative relationship between the potentials of different weapons. Paranoia has, in a sense, become material. It is as if the rockets had absorbed our aggression. Instead of looking at our own motives, we look only at the SS-20, at the Backfire bomber, at the MX and at the Pershing II, as if these

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products were the real main characters on the international stage. It seems as though the numbers, the deployment, the destructive energy and accuracy of the rockets determine by themselves whether or not the holocaust will someday explode. The result is that for years military technocrats have dominated discussions of security policy. In East and West, the public is overwhelmed with the data on rockets, warheads, nuclear bombers and submarines. It seems as if the securing of peace is synonymous with the task of somehow making all the data balance out, so that in the end a stalemate will result.

But this stalemate could already have been achieved at a much lower level of armament. Both sides have known for a long time that neither one can launch a massive attack on the other without risking deadly retaliation. The infinite escalation of mutual threats proves that forces are at work here which will push the deterrent policy ad absurdum, however logical this policy may seem in itself. Yet paradoxically, the revelation of just these decisive emotional forces is taboo. We act as if the motives of hatred and mistrust are only the irrelevant side effects of objective events. Therefore, it never occurs to anyone that this mistrust and this hatred must first be erased, in order to come closer to a really secure peace.

ALBERT EINSTEIN was one of the first to say this in all clarity: "The precondition for a real solution of the security problem is a certain mutual trust by both parties, a trust which cannot be replaced by any kind of technological measures." And in another place he says: "Everyone sees that under the present conditions a serious military conflict (in fact, even the preparations for a possible military conflict) must lead to the annihilation of all mankind; nevertheless, men are unable to replace cunning and mutual threats with benevolent understanding."

These sentences mean that we must attempt a basic rehabilitation of the psychological dimension of our security policies. We must reflect on the decisive role played by our psychic energies, which can be directed either towards destruction or towards survival through trust and cooperation. The peculiar dynamics of the military-industrial complex and the profit interests of the armaments business are other important determinants. However, to capitulate before these anonymous power complexes would mean to surrender ourselves. We would have frittered away our chances to mobilize our opposing forces just at that point which EINSTEIN

declared as decisive for the averting of our fate. He said that the decisive event had to be a radical turnabout in our thinking, a determination to transform our whole psychological standpoint.

My subject has been the psychological effects of living under the threat of nuclear war. But as we can see, there is a reciprocal relationship between the threat of atomic war and the psychic constitution of human beings. By itself, the threat of nuclear war is not a fate which automatically results from the modernization of weapon systems and strategic concepts. Rather, this threat is first inflated by mankind's psychic impulses, which are then reflected in a corresponding policy. In the end, we have only the mutual reinforcement of paranoia on the one hand and high levels of armaments on the other.

The German peace researcher, CARL FRIEDRICH VON WEIZSACKER, has declared that the absence of peace is essentially a psychic disease. The psychological traits which I have described above support this judgment. The displacement of fear, the denial, the collective persecution complex and finally the technocratic rigidity of thought are all symptoms of a kind of psychological sickness.

But how can we rid ourselves of this sickness? In 1959 KARL JASPERS gave top priority to the demand that we overcome our "refusal to know". In his words, "We must think about something every day, if it is to have some consequence within us." However, such abstract counsel is not effective enough against the tendency to deny. A better method consists of presenting the manifestations and effects of nuclear war as vividly as possible. Films such as the one on Hiroshima or "War Game" are well-suited to breaking through the barrier of denial. In addition, presentations which clearly explain the effects of bombs exploding over the listeners own hometowns can force people to look honestly at the situation. In West Germany a short time ago, an American film by CBS on strategic hypotheses aroused a great deal of attention. The film dramatizes the destruction of a certain West German village near the Iron Curtain by tactical nuclear weapons. This motion picture, which entered our country by roundabout means, has contributed more to the elimination of this widespread denial and to consideration of the concrete dangers than the many well- intentioned but abstract publications by experts. Public announcements by psysicians' organizations, stating that medicine would be powerless in case of a nuclear war, can also shake people out of their complacency.

We physicians have a special and legitimate contribution to make to this psychic reorientation. Our profession, along with that of the priest, is destined by its special ethics to overcome this viewing of friend and foe in absolute terms, a way of thinking which to some extent is officially ordained. We are obliged to give help without distinguishing between friend and enemy. Our mission, to commit ourselves at all times to the protection of human life and health, forbids setting our priorities according to the principle that some lives are more worth saving than others. This holds true for both our therapeutic and our preventive duties. Moreover, I believe that the international organization which has brought us together here from East and West is an expression of our common preventive responsibility, as physicians, towards all human beings, regardless of race, nationality or social idealogy. But how can we shape our contribution most effectively, in order to promote the healing of the psychic disease of paranoid suspicion? I feel that the basic attitude of our profession gives us a special chance to penetrate these dominant paranoid motives and to spread this new awareness. Helping people become aware is more important than moralistic appeals. EINSTEIN, whom I would like to quote one last time, by no means described the task of rethinking as a moral one. He said, "In the shadow of the nuclear bomb we see more and more clearly that all men are brothers. If we recognize this simple truth and act accordingly, then humanity can move on to a higher plateau". It is thus a question of simple awareness that nuclear war is indeed a common peril, to which we will either succumb together or which we may be able to survive together. Not that we ought to be brothers, but that we <u>are</u> brothers - this is the meaning of EINSTEIN'S statement. We are summoned to finally grasp this simple truth. But just as valid is his indication that this logical conclusion will only lead to a different kind of behaviour if those emotional drives and forces which help preserve peacefulness can also be brought into play. I have the impression that in the peace movement, along with fear and outrage, it is just these more constructive forces which are becoming visible. There are many indications that decisive energies for social self-healing are beginning to appear. If this assumption is correct, then it would be a truly fitting task for us, as physicians, to support these tendencies with all our powers.

ADVERSE EFFECTS ON CHILDREN

Dr. Eric Chivian

There is surprisingly very little written about the effect of nuclear war on children, even though nuclear weapons have been with us now for 37 years. In 1961 a Professor from New Jersey named Milton Schwebel gave a questionnaire to some 3,000 students at the height of the Berlin blockade, asking them whether they thought war was going to occur (1). A large majority of the students in Junior High and High School in the United States questioned at this time answered yes. In 1962, just aftr the Cuban Missile Crisis a professor Cybil Escalona from Albert Einstein College of Medicine interviewed some 350 youngsters from aged 4 to adolescence. (2) In the United States at this time there was great talk about civil defence and questions included what they thought the world would be like in ten years and in what ways it would be different. Professor Escolona didn't mention nuclear weapons but more than 70% of the students questioned spontaneously mentioned the bomb in their responses. In recent times between 1978 and 1980 the American Psychiatric Association appointed a task force including Professor John Mack, who is co-editor of the book Last Aid (3), and Dr. Bill Beardslee. They interviewed some 1,000 children in the Greater Boston Area asking them several questions about their thoughts and feeling about nuclear weapons (4). Once again a surprisingly large majority of those who responded were concerned about nuclear weapons, thought about it a great deal, and more than 70% responded that the United States would lie in ruins after a nuclear attack. There was almost no belief that nuclear war was a survivable option for the United States. The lack of studies about children in the United States and in other parts of the world in this nuclear issue is reflection of another kind of denial that adults have about children. We suspect that they are shielded and don't know a great deal about the frightening or horrible things in the world. And I must confess that I shared that same denial until my ten year old son, reminded me that I was a part of that same process. One year ago during a discussion with him, or actually an argument, I said one of those inane things that parents promise

themselves never to say to their children; "wait til you grow up and have children". My son is a black belt when it comes to delaying coming down to breakfast or going to school; I was very exaspersated and said this and he turned to me and replied, "I'm not going to have children" and I asked him what he meant by that. He said "Poppa, there's going to be a nuclear war and we're all going to be killed." I was very shocked by that comment. I wondered whether it had something to do with the fact that I was working on this issue for the last four and a half years and my home had been filled with colleagues and friends who were discussing this and that he was just inundated with questions about nuclear weapons and nuclear war and was responding to that. So to look at that more fully we arranged to go into his fifth grade classroom in a state school, in a town called Brookline in the greater Boston area, to see whether his classmates shared those feelings. That's really the beginning of the video which accompanies this paper. In retrospect it wasn't so surprising that my son, and the large majority of children of his age and even younger, thought a fair amount about nuclear weapons and at times worried about it. It wasn't so surprising because in the United States at least they are inundated with images of nuclear weapons, explosions and with talk about nuclear war. Children are intimately connected with their cultures and they absorb its messages of anxiety and despair as do the rest of us.

Messages on the nuclear issue include nightly T.V. news, magazines such as T.V. Guide going to more than 20,000,000 homes, Time Magazine with a circulation of 24,000,000 and Newsweek - all of these had in the last six months front covers with reference to nuclear war. Another magazine - Science 83 in a recent edition shows a weapon coming over the pole and hitting somewhere in the centre of the U.S. - the article is about the electromagnetic pulse of the earth being effected by a nuclear war. Other examples include an article in the Boston Sunday Globe magazine about civil defence - running away from the bomb. Even the humour magazines have been hit. In the Harvard Lampoon edition of Newsweek - Nuclear Arms and Terrific Legs - A Life magazine article shows some of most frightening pictures of the nuclear weapons systems in the United States. Pictures of B52 bomber crews scrambling to their planes and the underside of a B1 bomber. All these photographs are taken with the maximum effect of frightening or showing the power of these weapons.

The headlines in the U.S. newspapers once a week on average say Nuclear War or Nuke in one way or another. Its even come to the cartoons both in newspapers and in childrens comic books. In a newspaper cartoon someone is saying "To get a calm, rational understanding of the arms race we'll first take a look at the nuclear weapon as a deterrent. Imagine if you will a 20 megaton megaton nuclear device detonating right over little Tommy Suggins." Another cartoon shows a waitress in a cafe looking outside, seeing a mushroom cloud and then saying - "better make that takeaway".

A recent survey asked Americans what percentage of their free time they spent doing various things. Playing video games and watching TV occupied 58% of their time, which was three times more than having conversations with other people and five times more than sexual activity. There is a video game called missile command, a rather old game, the object being to fire your missiles off to destroy incoming enemy attacks and protect your cities. If you fail your cities end up in flames which are graphically demonstrated by the computer and if you completely fail and lose the game, there's a large explosion which says 'The End'. In the United States anyway there's a computer electronic voice which tells you that the game is over. Other new video games include Gorf, the Wizard of War, the object being to prevent a neutronium bomb from stopping you, and Atlantis, where the object is to prevent the city from being totally destroyed.

Graffiti is another way that kids and people are exposed to nuclear weapons. These include:- Next war is nuclear war; Nuke egg and his mother; 'Stop World War Three'.
These are all over Boston now, especially one which is a mushroom cloud and says 'Today?'. That stencil is on sidewalks and on the sides of buildings. I understand there's a fair amount of similar graffiti in London.

That amount of exposure is not unique to the United States, those headlines and news magazines and graffiti are all over the world. We wanted to interview as wide a range of children as possible, and on the video tape there are 8 to 16 year old children in the greater Boston area. They're from three separate state schools. We saw close to 150 children and young people in this study and tried to standardise the protocol of questions so that we would

not interfere with what they were saying. In other words not jumping in and correcting misinformation, or challenging stereotypes, most of all trying not to reassure them, which is the hardest thing in interviewing children about this issue, but the most necessary. We asked four questions which make up this protocol.

The first was how they heard about nuclear weapons and nuclear war. The second question was what that information made them think about, the third was how it made them feel and the fourth was how those thoughts and feelings affected their thoughts about the future.

We videotaped them for two reasons, one was that it's very much more dramatic and much more information is contained in listening to and watching a video tape, watching their expression etc. Also we wanted them to know that by making the video tape they were participating in the solution to this problem, in other words we didn't want them to feel disenfranchised or helpless. We wanted them to know that the video tape would be shown to other children, be shown to people around the world and could influence people to do something about this problem, which we'll get into in a moment.

The third grade (ages 8 and 9) video tape was made during the Falklands War, and in the United States this was widely reported and many of the children, at least one of them in particular, was not clear that a nuclear war was not going on right at that time. They knew Britain had nuclear weapons, they knew Argentina was about to get them, so there's some confusion in this class about whether there was a nuclear war at that time.

One of the questions that has come up in showing this video tape to people is what is so different about this fear from other childhood fears which are normal, and are children just focusing and displacing all their other fears onto nuclear war? I think there are two things that are very different psychologically. One is the issue of total destruction, the fear of everything being killed, we blow up life on this planet there'll be nobody left. There are many such comments in interviewing the kids. I think that fear is very different from normal fears of the dark or snakes or boogy men or whatever, but there's another aspect which I think is even more important. With normal childhood fears kids

come to their parents and tell them about fears, of the dark, of snakes of spiders, whatever and the parents reassure them. They say there's nothing to be afraid about, there's nothing out there, the spiders are not poisonous, etc. With this fear the parents at least in the United States and I suspect in other parts of the world are as afraid if not more afraid than the children. If the children mention it to them at all I think they're likely to get responses that indicate that the parents are not all that sure there won't be a nuclear war either. In a recent poll in the United States, 30% of adults that were interviewed said that the chances were good or certain that there would be an all out nuclear war between the United States and the Soviet Union within the next 10 years. 86% felt that if the U.S.S.R. bombed in a limited way targets in the United States with nuclear weapons and only kept to military targets, that their chances of survival were at best only 50 50. So the adults in the United States are as afraid if not more so than the children and that makes the children's fear much greater and they're less protected.

Now I wanted to close by reading a letter that we received on doing a direct mail campaign in the United States to raise money. It's from a Professor of Biophysics in Virginia and he says, 'I am sending this cheque on behalf of my son Joel who took his own life on November 18th (this letter was sent December 1st) I know it isn't much but I'll continue to send what people send to me in his memory. Joel has been (it's all present tense) terrified by the idea of nuclear war for most of his 23 years .. He is a poet and musician and much of his writing and composition dealt with the insanity of everyone around with regard to this horror. One of the things found on him when he was found hanging in his room was a clipping from the paper about the effects of potential nuclear war. Joel had many things on his mind but I can't help but wonder how badly we are hurting our young, he could no longer face it. The many who remain deserve better than what this crazy world is offering'

Now I'm not saying that the threat of nuclear war explains all the problems of society or all the problems of our young people, drug abuse, the rise in cult practices in the United States, a declining academic performance, a four times increase in the suicide rate among adolescents in the United States in the last thirty years, but it is clear that many young people are haunted

by nightmares of devastation from a nuclear war. The young people especially have a sense of being abandoned and it is true that as a society I believe we have damaged our children and are continuing to damage them by robbing them of a belief in a future. Even if nuclear weapons are never used living with the constant threat of nuclear war and with the standard practices of confrontation and threatening dehumanisation of other people that's rife now in international relations, these practices are damaging our children and we are all paying the price for this that I believe we cannot afford. The statements of these young people on the video tape are perhaps the strongest indictment yet of the escalating nuclear arms race. Young people are our conscience and our future, they look to us to help them with this, the greatest problem of our time; we must listen to them and not let them down.

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Transcript of videotape

"THERE'S A NUCLEAR WAR GOING ON INSIDE ME":
What Young People are Saying About Nuclear Weapons

Classroom Discussion with Dr. Eric Chivian and Ms. Roberta Snow

INTRODUCTION

Roberta Snow: For more than two years the Facing History and Ourselves Project has been concerned with the way young people think and feel about the nuclear arms race. Students come into our classrooms with misinformation, anxiety and fears about the future. We feel an obligation to address their concerns. For the past year we have been going into classrooms in the greater Boston area to find out what questions, ideas and fears young people have about nuclear weapons. We want them to know that we care about what they think and that we want to talk to them about these issues, and that many of us are working actively to help create a safe and peaceful future. We hope people will listen to their words and find ways to support children and adolescents as they grapple with growing up under this awesome nuclear threat.

Eric Chivian: When we began this project we had little idea what we would find. As adults we shared the belief that children knew almost nothing about nuclear weapons and were probably not affected by the possibility of nuclear war. We discovered that we were wrong on both counts. As you will see in the material that follows, some young people, even from an early age, are haunted by a cynicism and a sense of helplessness that adults have made a mess of the world and are not protecting them, by nightmares of devastation and of being abandoned, and by feelings of hopelessness and despair, and in some cases a deep anger, that they may not grow up. We came away from these classes shocked that as a society we may have damaged and are continuing to damage these young people by robbing them of their belief in a future, interfering with this most basic aspect of normal growth and development. As you watch these eight to sixteen-year- olds speak we ask you to ask yourselves whether we are all paying a price we cannot afford, even if nuclear weapons are never exploded, by living in an age where confrontation, threatening and dehumanization of people in other countries is the rule. Perhaps

the statements of these young people offer the strongest indictment yet of the escalating nuclear arms race. We urge you to listen carefully to these children and adolescents, and to your own.

8-9 YEAR OLDS: 3rd Grade - Lincoln Public School, Brookline, Massachusetts **Boy 1:** "The first time I ever heard about nuclear missiles I heard it on the news that a nuclear missile has three warheads inside. And I was scared. And when my sister heard about it she start crying and I had a terrible dream. She was crying 'cause she didn't want to die— she wanted to grow up and live."

Boy 2: "And I just worried that I might die and I don't want nuclear wars to happen 'cause they're really dangerous. I just see a lot of area that don't have any houses and lots of broken houses and no people around 'cause of the nuclear war. All gases and stuff."

Boy 3: "I heard about nuclear weapons when I was going to an army base with my uncle— I was going to an army base with him— he was going to show me around. And then he was talking to me in the car when we were going there— he was talking to me like-- when a few nuclear bombs could wipe out the whole world-- It made me feel weird. Scared at night. (Eric Chivian: "Scared at night?") I'm scared almost half the week because I thought a nuclear bomb was going to fall down and blow up the whole world."

Boy 4: "I just kept on thinking about having to get killed by nuclear bombs, and sometimes I didn't want to go to sleep 'cause I was afraid I was going to have a really bad dream about a nuclear war and get killed or something. Maybe my parents and my friends and all my family would get killed and I'd just be alive and I wouldn't know what to do or anything. And I'd just be stuck."

Boy 5: "I'd have nightmares or something that maybe I would survive and my parents and my brother and sister were killed or something. (Eric Chivian: "That you had survived.") Yeah, or something. Maybe. And I'd have... practically everybody else was killed around.

Girl 1: I sometimes think that I'd rather be dead because then I

could go up to heaven and I wouldn't have to worry about all this stuff about nuclear war."

Girl 2: "If I did survive, even if there was enough food I'd probably kill myself or I'd just die of sadness because all my family and all the people I love would die."

Boy 6: "I think I'd rather live in B.C. where there were no people. Well, there were people, but there were no war kinds. And I think that, I always keep on thinking that when I grow up I'm going to be an astronaut but I think I'm never going to be one. War's going to keep going on and nuclear missiles are going to keep on bombing countries and stuff. I think I will be dead and I'll never survive."

Boy 7: When I grow up I wanted to be an inventor, like invent new houses or...and I'm sort of scared that I'm never going to be able to do that because, you know, they're going to make more missiles to fight with instead of using them to blow up all their missiles, which would help, but they won't do that.

Girl 2: "I tell my mom that I'm never going to have a child because if I do then I'll die and also my child will. And I'm not that scared about myself because I'm myself, I'm one person. But, like, you know, like if everybody in the world got killed then there'd be nobody left."

10-11 YEAR OLDS: 5th Grade - Lawrence Public School, Brookline, Massachusetts

Girl 1: "I don't know, I feel like there's a nuclear war going on inside me. It's terrible."

Boy 1: "This man, he was a 'veteran' of a war and he was 84 years old now and he had burns on his legs because all the gases and acids, and he says that the people in Hiroshima's eyes melted because of the heat and the radiation."

Girl 2: "I see images like of fires and everyone screaming and crying."

Boy 2: "If we blow up this planet, there's no more life in this

solar system that can...I don't know, it just seems...I was listening to the radio one time when it said that they were bombing in World War..., and they were bombing and the people were running from...when the first bomb hit the people were running and their skin was just like falling off and whithering up and falling away and it was like puddles of blood and bones. It just seems real... (Eric Chivian: "This was at Hiroshima?") Yeah. It seems real scared and then the people did not survive, they got to another city and when they got there there were bombs and they died anyways. It seems not fair."

Girl 3: "If there's a nuclear war you won't have fun, you can't o you can't even have grass so, you just die, you can't have anymore beauty. When you think of it, when you see a field with maybe long grass and you're just looking you might just all of a sudden think, Oh my God, this is so pretty. I mean, I can't believe this when after a nuclear bomb you'll never see it again."

Girl 4: "When I think of growing up and of nuclear...like when...sometimes when I think growing up, I think of, you know, like getting a good job and living until, you know, I die instead of being killed, and when I think of nuclear weapons I think of not even getting there not even growing up, just kind of dying, and it doesn't, it change...it seems, it gives me a picture of...myself being like, you know, having to be careful of, you know, threats on the radio and bombs that are going to be coming towards us and everything. And just sort of changes my imagination of growing up and when I'm old and everything."

Boy 3: "If I do grow up I will want to spend all my time, or a least a lot of it, trying to fight against it 'cause I don't want...I want, if I do grow up, to let other people have a chance to grow up, not just grownups."

Girl 5: "Well, I want to grow up...in the year 2000, I'll only be 30...and I want to live 'til I'm at least 80 or 85, but, and sometimes when I do that... I can just imagine myself in a coffin and then being put into a grave where I just get shoved into some dirt or something. The coffin gets shoved into the dirt, and I don't want that to be my future."

Boy 4: "And, I think one way to get rid of nuclear bombs is to

march like Martin Luther King did, you know, and make speeches and all and everything like that."

Girl 2: "Why can't we just go and take those bombs apart and thro 'em away?"

Girl 3: "I think you should really stop and take a look because the beauty of the world is really, it's expensive and nobody can buy it. And you can't if you blow it up you have no more left and it's worth a lot."

12-13 YEAR OLDS: 7th Grade - Lincoln Public School, Brookline, Massachusetts

Boy 1: "And like, when I think about nuclear missiles and stuff I think like, we're all talking, and all of a sudden one would go off and we'd have no place to go and the lights would go out and everything would just all be dead and that really, that makes me scared. You know, I'm walking along and I can just imagine a bomb going off and hearing sirens but just like sirens going off and nothing."

Boy 2: "If the government found out that another country was shooting enough missiles at us to blow up the United States, would they tell us or would they just wait for us to like see missiles?...Well, like, would they tell us? It would just cause a lot of panic, it wouldn't really, you know, help it."

Boy 3: "Even if there were time to go somewhere, I mean you couldn't because like everyone would be trying to escape the highways and the airport and everything would be all crowded and you couldn't, you wouldn't be able to go anywhere."

Girl 1: "It's just sort of stupid in a way, because they're so worried about...they're really upset about killing those people die and yet they're risking other people's lives in case there's a war again. (Eric Chivian: "Now, who are you referring to?") The Russians and the United States, both."

Boy 4: "You know, it's so dangerous what we're playing with, and it really sounds like we're playing with it 'cause I don't know

what are... I'm not sure what the issues are...I'm not sur anybody besides maybe the government, if there are any issues that we're arguing about that are so, we're so against each othe that we have to use things like this. What, like, usually whe you get into a fight you have a reason, you don't just hit him. You say, no, that's not so, or that's what I believe that's not what you believe, but I don't think, I don't see our difference with for instance the Soviet Union.

Boy 5: "We were allies, weren't we, in World War II?"

Boy 4: "And even if there was, what are we fighting about now?"

Girl 2: "When I think about it, I sort of get scared for a while, then I sort of figure, well, it's not going to happen to us, but, in a way, it could, but I sort of put it off and I don't think about it that much."

Boy 6: They had this thing, on there was a big program on the United States power stuff and who has more power, the United States or the Soviet Union and I was watching...you know to sit there and watch these guys in tanks riding across the television screen you know thinking that you could, you know, that has some effect on you and then they start shooting stuff. And, you know, just thinking that they could be blowing you up...and it makes you feel weird. It has an effect on you...that could be you inside that tank, and you firing those missiles."

14-15 YEAR OLDS: 9th Grade - Cambridge Ringe and Latin, Public School, Cambridge, Massachusetts

Girl 1: "I'm not angry, I'm frustrated with having to deal with this and knowing that, I mean, you can't really think about your future at this age because who knows what's going to happen and we may not have a future, if some kind of war does break out. And just it really dampens everyone's hope sometimes...it just doesn't seem like you can look forward to anything, and it just makes me angry that, just some people's stupidity, how they handle the situation. You know, I just recently realized that some, you know, maybe one of these days, maybe we won't even make it to 30, who knows? (Eric Chivian: "To 30?") I don't know... but then

again, you know, I try not to be too negative about it. I just..."

Boy 1: "You get a few crazy people and they press a couple of buttons and blow up the world."

Boy 2: "Just like someone can say if they want us dead or not; if if someone makes a mistake then we have to die, too.

Boy 3: "You know, if everyone else I knew or just this general area was gonna go, I'd want to too...a handful of survivors, I wouldn't want to be one of them."

Girl 2: "I wouldn't want to survive either because everything else would be gone and you would have nothing to look forward to because schools and some buildings would be knocked over and there wouldn't be any grass or animals left. I can't imagine what it would be like."

Boy 3: "If there is a war, it's going to be bang, bang not boom, boom, you know. Like not dropping bombs. So, I mean why do they have the bomb if they're not going to drop them? That's something I don't understand."

Girl 3: "Politicians tell us you just dig a hole and put a door on it and put dirt on top and go in, you're okay, but I don't think it's true, you know if we explode all these bombs, it's going to destroy the ecology, the plants all die and the animals, and the ozone gets destroyed. You know, what do we do, you know?"

Boy 4: "I'm planning to get married. If this does happen, right if radiation does get my wife while she's pregnant, right, you know, what then? It's like, what's my baby going to turn out to be, like a monster or something? In a way it would sadden me because, you know, it would hurt me in a way to know that I gave that I helped give birth to, you know, to something that isn't quite what I expected. So it would sadden me."

Boy 5: "Parents try to shelter you from all the things you got to face in life. They try to shield you from what you're going to have to find out sooner or later. You know, I don't think that's right. Some parents are afraid to bring subjects up because

sometimes they might not know anything about it..."

Boy 3: "I think it would be someone from our generation that would change it, 'cause people older than us they have their fixed opinions. We're growing up against it, more or less, I think everyone I know is growing up against it. You know I don't hear any kids my age saying, yeah, yeah, let's go and shoot off a few bombs. I mean, I don't really hear that many older people saying that either, but they're the ones that have them, not us. We don't want them, so if it's changed I think it will be someone from our generation. But it's going to take a little while."

(END COMMENTS AS BACKGROUND TO CREDITS)

5th Grade Girl 1: "I think that in a nuclear war nobody could win they'd just destroy each other and I don't think anybody could live through it."

5th Grade Girl 3: "I wish we didn't have to have them, I mean, you don't want to die. And if I can only live to go to eighth grade, I don't think..."

9th Grade Boy 5: "If we can work together, the adults can work together, and we're practically at that stage now, anybody agree with me?"

5th Grade Girl 2: "Why can't we just go and take those bombs apart and throw them away?"

5th Grade Boy 4: "I think one way to get rid of nuclear bombs is to march like Martin Luther King did, you know, and make speeches and all and everything like that."

9th Grade Boy 5: "I think it's important to let the people know that the kids should have a say in the matter and that they also know what's going on. Right."

5th Grade Girl 3: "I think you should really stop and take a look because the beauty of the world is really it's expensive and nobody can buy it. If you blow it up you have no more left and it's worth a lot."

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CHAIRMAN'S CLOSING REMARKS

Dr. John Gleisner Few of us are in any doubt about the horrors of nuclear war. Indeed the paper by the Foreign and Commonwealth Office acknowledges the 'horrific' consequences' and states that for this very reason we need an effective policy of deterrence. Many years ago Einstein said, 'The unleashed power of the atom has changed everything except our way of thinking. We need an essentially new way of thinking if mankind is to survive.' Now I believe Einstein, when he wrote these words, meant the unleashed physical power of the atom, but in another sense, the psychological sense, the power of the atom has had an equally destructive and I believe debilitating effect on our security. For not only have we maintained our old ways of thinking, but to a large degree, nuclear weapons have actually helped ossify that thinking on questions of how we best provide for our security. The central part of defence policy since the advent of nuclear weapons has been deterrence. One of the effects of deterrence has been to divert attention, that is to say money, energy and above all human resources away from other methods of preventing and resolving international conflict. In my opinion the recent Falklands War provided an almost laboratory situation for attempting to deal with armed aggression by other than conventional military methods, and that this failed, I think is an indictment of all of us, an indictment of our sluggish ways of thinking that have not been developed since 1945. Many have allowed themselves to be lulled into feeling they are secure. A comment on a book written on behalf of the American organisation Ground Zero puts the question 'Why do you feel frightened with 10,000 nuclear warheads protecting you?'

Gregory Bateson, who was in his day perhaps one of the foremost social scientists in the world was also Regent of the University of California which has the task of managing one of the two nuclear research laboratories in the United States. In 1977 a controversy flourished in which he wrote a letter to the Rector explaining why he was opposed to the university having that function. In that letter he drew attention to the similarity between nuclear weapons and deterrence and addiction. Now one obvious similarity is the sense in which the addict having had a jab gets a sense of security similar to the latest nuclear weapon which gives a kind of sense of security for a time, but then

gradually there is a need for an even bigger nuclear weapon - a even bigger jab - in order to provide a sense of security. No anyone who has ever been involved in the treatment of the addic knows that simply to point out the horrors of the effects of tha addiction has a quite limited effect. There is always a mechanis which says something like, "that maybe so but it's not actuall going to happen to me".

The Medical Campaign Against Nuclear Weapons as well as the International Physicians for the Prevention of Nuclear War has moved on from what is still I think a very important function o presenting the horrors of nuclear war to be looking much more seriously at what is our contribution to prevention. Whilst there is considerable funding for the prevention of alcoholism in this country as well as considerable funding with regard to medical planning in relation to nuclear war, to my knowledge there is no funding by the Department of Health in the field of the prevention of nuclear war. So far that has not been seen to be within the competence or interest of those engaged in the health service. I hope this position is going to change, but until it does, I think you'll agree from the papers presented, that there is some very important research that needs to be proceeded with. I should like to draw attention to two things, firstly that there is a working party dealing with the topic of research, and that secondly we are appealing for money in order to set up a trust fund for research.

THE RESPONSIBILITY

OF PHYSICIANS

THE THREAT OF NUCLEAR WAR AND THE RESPONSIBILITY OF THE DOCTOR

Prof. Horst-Eberhard Richter

At the top of the official IPPNW note-paper there stands as a motto ALBERT EINSTEIN'S famous postulate: "If mankind is to remain alive, then we are in need of a fundamentally new way of thinking". By this 'new way of thinking', EINSTEIN meant a thorough-going change of attitude. Correspondingly, he demands: "Men must radically transform both their attitude to one another and their concept of the future".

We doctors, however, know full well that human behaviour can be modified only within those limits which are determined by our inherited nature. Are we actually capable of developing the fundamentally new attitude which EINSTEIN demands? How seriously do we take our magnificent motto? There are occasions when one makes a reverent bow before certain lofty ethical ideals while at the same time secretly considering that those ideals are unattainable. It makes one feel good if, from time to time, one can identify in one's imagination with the ideal of a higher humanity. It bolsters our self-esteem if we can believe, even for a moment, that we could perhaps, after all, become better than we are. It seems to me that the repeated use nowadays of EINSTEIN'S famous formula is understood by many people solely in this psycho-hygienic function - that it would be fine, it really would, if we were fitted out with a peace-loving nature, which would enable us without difficulty to assume the attitude proclaimed by the great physicist.

On the other hand, however, do we have to believe at all those who teach us that our violent behaviour is determined by our biology? Undoubtedly, there is one part of each of us that is made up of aggressive urges. But it is equally incontestable that men, in contrast to animals, can so channel their aggressive impulses that they are not harmful to society. No historian on earth has yet discovered a direct causal link between aggressive instincts and the stirring up of war. Among social psychologists there is one

who has concerned himself more than any other with the social effects of human aggression: this was ERICH FROMM in his important book on "The Anatomy of Human Destructiveness" (Die Anatomie der menschlichen Destruktivitat). His conclusion reads:

"The thesis that war is caused by inborn human destructiveness is simply absurd for anyone possessing even the slightest historical knowledge".

We doctors, at any event, clearly assume that our profession is not naturally prone to destructive behaviour. For otherwise, how could we view the Hippocratic oath as a binding norm for our practical work? How could we believe in not harming our fellow men if this were an unreasonable demand quite contrary to our nature? After all, our natural urges are not constituted in a different, more humane way than those of the members of other professions.

If, however, we are right in assuming that the Hippocratic demands are both realistic and capable of fulfilment at all times, then it is hard to see why there is not a move to have their sphere of validity universally extended. In 1972, this very idea was put forward by the philosopher GUNTER ANDERS:

"It is intolerable and inexcusable that only doctors are honourbound (by the Hippocratic oath) not to harm those people with whom they deal. And that, on the other hand, the millions of people active in other professions - the scientists, the engineers and the legions of industrial workers, on whose actions and inaction the fate of mankind equally depends - that they are not demanded, and do not demand of themselves, to bind themselves likewise by an obligation in line with the Hippocratic oath". And GUNTER ANDERS says further:
"Morality is indivisible. A 'morality' which becomes the monopoly of a small and select group or becomes a duty solely within the boundaries of a certain professional area of competence; a morality whose claims prove invalid outside these boundaries; a morality therefore which has itself become a victim of the division of labour - such a morality does not deserve the name. And this name is no more than a pseudonym for institutionalized immorality".

In fact, however, we have long since been living in a society which not only divides its labour but also, to some extent, divides its morality. For some, it is completely natural that their entire activity is directed towards helping their fellow men. Other groups find it equally natural to pursue- for example - politics as a question of power pure and simple, or to be involved, in theory or practice, with the invention or production of things whose sole function is the destruction of their fellow men. According to J. WEIZENBAUM, almost 60 percent of all scientists in the world are involved directly or indirectly in the research of destruction. This is why WALTER JENS recently proposed a kind of Hippocratic oath for scientists: "I swear that, neither directly nor indirectly, will I participate through my research in the preparation of war".

Of course, no-one can fail to recognize that great efforts will be required if the demands of GUNTER ANDERS and WALTER JENS are ever to become decisively established. For us doctors, the question is: 'How can we support such a development?'. It is, essentially, from our answer to this question that the future strategy of the doctors' movement must emerge.

Many of us are proud of the fact that at least we doctors have launched a semi- institutionalized movement which transcends ideological boundaries. Isn't it splendid that doctors from numerous nations in East and West have jointly issued Freeze appeals to the governments in Washington and Moscow as well as to the Secretary General of the United Nations? Is it not a major step forward on the road to humanitarianism if we warn all men alike - on this side and on the other side of the Iron Curtain - of the horrors of an atomic war? Is it not satisfying to see the media paying some attention to us and even some politicians taking notice? And does not this take us virtually to the limit of what people in our position are capable of doing?

I doubt very much, however, if what we are yet doing could ever be enough. For this kind of activity would still leave us within the framework of what was above called a society of divided morality. The public at large does not see anything abnormal in men of the Church, men of letters, and now men of medicine too, pouring forth lamentations about atomic armaments. It is naturally quite right and proper that the Pope should denounce the insanity of

the arms race, that the introverted men of letters should invoke a peaceful utopia and that the doctors should remind the public of the quite unbearable strain which an atomic war would place on medical resources. As long as pastors, writers and doctors restrict themselves to verbal warnings, their activities are considered to be quite in order - indeed, in part, they are paradoxically considered to be even comforting. After all, it's jolly good to know that society still contains such noble groups of men who issue on behalf of everyone at least verbal pleas for humanitarian values, with which everyone would like to identify in his mind's eye. Thousands upon thousands are less heavy at heart if, from time to time, they can listen at some rally to sermons, songs, poems or militant speeches about peace and can at the same time know themselves to be at one with the great audience around them experiencing a similar emotional discharge. Then the people go home, somehow filled with the magical hope that something significant has happened, in themselves, or even in the political world outside. Then, one day, in resignation, they see their illusion.

In other words, those social groups who have in a way been accorded a monopoly over humanitarian norms, must step out of their isolated roles. We doctors can expect Hippocratic principles to be effective in preserving peace only when, for the sake of these principles, we enter directly into conflict with the power-bound thinking to which the political world is largely subservient.

Once again, I should like to quote a wise saying of EINSTEIN: "Mere praise of peace is simple, but ineffective. What we need is active participation in the struggle against war and against everything that leads to war". What he had in mind was a nonviolent struggle, but nevertheless a struggle. What is required is for us to make our direct political responsibility visible in such a way as to unite our artificially separate roles as doctors and as political citizens and thus to stimulate also the people around us into thinking about the problem in an overall perspective and taking responsible action on the basic issues.

What we need to bring about is what JOSEPH WEIZENBAUM expressed in the following words: "At the least, each individual must act as if the entire function of the world, of mankind itself, depended

on him. Anything else is a shirking of responsibility and is itself a further de-humanizing force: for anything else just re-inforces the individual's notion of being not a whole person but merely a character in a play written by anonymous powers - and that is the beginning of passivity and aimlessness".

If we doctors are to take on such an overall responsibility, then we at any rate must judge our contribution to the struggle for peace by the kind of political effect it has, and not by whether it happens to conform to the traditional patterns of behaviour customary in our profession.

It is my belief that we should not content ourselves with merely informing the public about the medical dangers of atomic war - as, for example, we make clear to the public the connection between cigarette smoking and lung cancer. We have to make the assumption that those in positions of political responsibility have long since known what misery and agony a nuclear war would cause. After all, even the passivity of large sectors of the public is based not on a lack, but on a suppression of relevant information. We should be clear in our minds, therefore, that medical consciousness-raising by itself can have only a very limited effect on its audience. This effect can easily be overrated by those who organise such consciousness-raising activities and take an active part in them. Their activity can, in certain cases, give themselves an inner boost. And they then mistake their personal self-help effect for the effects they are having on the invited audience.

I do not wish, by these remarks, to devalue medical consciousness-raising work, work which I myself often do. I only want to make the point that such work is not enough. It is a matter of experience that stereotyped thinking about the enemy - which is the basis for the philosophy of deterrence and the arms race it encourages - is not changed by medical consciousness-raising, however radically the latter is carried through. According to a resolution of our section of the IPPNW, however, we have taken it upon ourselves to encourage both the reduction of this stereotyped thinking and a mutual trust between nations in East and West. We have explicitly declared that this is a fundamental contribution which doctors should make to the prevention of atomic war. It could be taken as a first step in

this direction that the IPPNW has brought together doctors from East and West, that these doctors now hold joint meetings and that they issue joint documents and appeals.

We should not, however, feel ourselves to be delegates of society, doing by proxy for the rest of the population and the politicians something which they must do for themselves. And this brings me back to my postulate that we must change our traditional behaviour, give up our distanced role, and become involved in politics. We must insist on the fact that partnership and co-operation which transcend the frontiers of ideological systems cannot be limited to the sphere of humanitarian professions, but must necessarily set to work on securing peace by <u>political</u> means.

As one who took part in the last war - in the final instance as a military doctor - I could never understand why, for example, soldiers must first be lying wounded on the battlefield before they have any right to be treated by the medical corps of this side or that simply as fellow creatures in need of help. Why can't we doctors muster the strength to demand at long last - and all the more so under the modern threat of atomic war - that this thinking in terms of one's fellow human beings must now be practised by all of us, and especially by politicians? In the final analysis, we are all in a completely new sense Moriturimen condemned to die - planned, on both sides of the Iron Curtain, to be the million-fold victims of a strategy which is described, in perversely Orwellian language, as a strategy of defence. What kind of a defence is it in which the defenders can no longer live to enjoy what they are supposed to be defending, even if what they are defending is still there to be enjoyed!

Why do we not protest bitterly when REAGAN and WEINBERGER try to do away with the very words 'detente' and 'security partnership'? Why,on the other hand, do we not put in a plea for an intensive increase in all those inter-relationships which transcend political blocs - inter-relationships which can re-inforce in the minds of nations an awareness that they belong together and are dependent on each other?

Among all the various forms of political involvement, there is one which suggests itself especially for us doctors: resolute support for disarmament in the realm of the <u>mind</u> or the <u>psyche</u>. For in

giving such support, after all, we are only canvassing for a system of thought in which we are anyway professionally trained. Moreover, following EINSTEIN, we have come to recognize such thought as a norm essential to the securing of peace.

In the course of peace talks in which I was recently able to take part in Moscow, I was very struck by the fact that even Russian politicians, who normally think in materialist terms, are beginning to attribute considerable significance to psychological motives in East-West politics. Thus VALENTIN FALIN, for example, spoke explicitly of the decisive part which the "psychological infrastructure" plays in the preservation of peace. Equally, ARBATOW and other Russians spoke repeatedly in almost imploring tones of "good will" or of "a change in our thinking" as necessary pre-conditions for any departure from the hazardous politics of confrontation. It was with precisely this in mind that the French Nobel prize winner, ALFRED KASTLER, said recently on television that no agreement on arms reductions would be of any use if it was not accompanied by psychological disarmament. Otherwise, his argument went, the arms which were scrapped in accordance with the treaty would immediately be replaced by other arms, and the lunatic arms race would continue. In other works, mutual trust is not secondary: it will not come tumbling into our laps as the result or so-called confidence-building measures in the political or armament sphere. On the contrary, trust is a primary concern: we must strive first to strengthen trust, in order to make possible and then to continue the material measures by which peace is furthered. Once more, I quote EINSTEIN:

"A genuine solution to the problem of security presupposes a certain mutual trust of the parties involved, a trust that cannot be replaced by any system of mechanized regulations".

Correspondingly, we doctors should be more courageous and more forthright than hitherto in combatting the propaganda of vilification and instigation which deliberately sows and aggravates distrust, in order to lend credibility to the stock-piling in our countries of ever more terrible weapons of destruction. Certainly it is pleasing that the IPPNW doctors agreed in Cambridge, and agreed again recently in the Hague, to support the demands of the American Freeze Movement. The construction testing and stationing of all nuclear warheads and

missiles should be immediately halted as the first step to beginning arms reduction. Appropriate letters have been sent to the UN disarmament conference and to the heads of state in Moscow and Washington. The most important thing about this initiative is, in my opinion, that doctors are here actually making a concrete political demand. This is a decision of principle, which, when viewed in the right light, compels one to take further steps. Implicit within it, of course, is a clear 'No' to the stationing of the new medium-range NATO missiles in Europe. Making this 'No' emphatically clear is no more than a transliteration of the IPPNW demands into the terms of our concrete situation today.

No less important, however, in my opinion, is another conclusion to be drawn from the basic decision taken in Cambridge and The Hague. If one intends to exert direct political pressure, then one's intervention must take a particular form, and the form it takes should be the form most likely to achieve the political result one considers necessary. But is the form of the polite advisory letter to a government, a delegate conference or political party sufficient to stop the madness of the arms race? Are not the centres of political power already piled high with hundreds and thousands of well-meaning appeals and manifestos from various social groups? Why do we act as if we didn't know that up there such warnings and pleadings are by and large recognised as just honourable knee-jerking or, at best, understandable emotional outpourings? Many of us would dearly like to over-estimate what we can achieve with our IPPNW letters. Traditionally, the political role in which doctors can most easily cast themselves is that of the obedient partner to whichever elite is in power. In a crisis, they consider it just within the bounds of propriety to give the political leaders discrete or - in an extreme case - even public recommendations as to which political course they should follow.

But the time has now come when we must sacrifice propriety to political effectiveness, for in the present menacing situation the latter is identical with our ultimate medical and ethical duty.

Not only the most clear-sighted peace-researchers, but also more and more politicians, are acknowledging that the nuclear arms race can be stopped only if there is stronger resistance from the

public, compelling the politicians to disarm. If this is true - and all the evidence suggests that it is - then we as doctors must intervene primarily in those areas from which the crucial energies of resistance must emerge. In short, we must get down more to the grass roots and support the efforts of the peace movement. At any event, our relationship with the peace movement must be given a clearer, more unequivocal form.

In order to clarify what I mean by 'the peace movement' I should like to add in passing that it should not be confused with those dominant groupings which come to the fore in organizing certain events and rallies. The peace movement is an inter-national force, spreading out over the frontiers of political blocs, causing millions of people, in countless small-scale and larger-scale organizations to work side by side for peace. It is not a collective, umbrella body, to be classified somewhere as an association among many other associations or a party among many other parties. A little 'local Residents for Peace' group, comprising 20 people in a village of 1,000 inhabitants is just as genuinely, or perhaps even more genuinely, the peace movement than any established, centralized organization with many thousands of members. But back to the question as to our unequivocal relationship with this movement. My theses are as follows:

1. The doctor's movement is as such a part of the peace movement.

2. It is part of the peace movement not only because it is pursuing a common aim, but because it can achieve this aim only by joining forces with the many separate elements of the peace movement.

3. The co-operation of politically involved doctors with other grass roots elements of the peace movement is important not only because it gives a combined impetus and impact: it is also important because it encourages the learning process of both groups involved. It is good for us doctos to widen our political horizons by contact with more politically experienced groups: and, on the other hand, we can give our friends supporting arguments through our medical and ethical perspective and our knowledge of the biological effects of radiation.

4. We have long realized the usefulness of close co-operation and joint action between doctors and other health professions: numerous instances of this are of course represented at this congress. We should, however, increase our links with the action groups of other social professions such as teachers, lawyers etc., as well as with action groups from the trade union and church sectors. Just think, for example, of the enormous effect on the public brought about by the mutual co-operation of American doctors and churchmen in their joint campaign of civil resistance against various civil defence programmes.

5. these various forms of meaningful co-operation, however, do not in any way reduce the value of an independent doctors' movement acting within the framework of the overall peace movement. If doctors resist nuclear re- armament by verbal statements or even by practical acts of civil disobedience, then they are relatively less likely to be suspected of just pursuing certain political ends. The moral authority of our profession continues to give us an especial opportunity to influence the public consciousness. Together with my colleagues from our section of the IPPNW, I view the exploitation of this circumstance not only as an opportunity but as a duty for the sake of our political goal.

But if we make common cause with the peace movement in the manner I have just described, and even take part in campaigns of civil disobedience, are we not thereby putting at risk precisely our especial authority as doctors? Will not such politicization deprive us of the very trust advantage by which we think we can gain an especial hearing?

This anxiety, which affects many of our colleagues, is understandable because the society in which we live is still, by and large, a society submissive to authority. In my country - unlike, for expample, in America - it does in fact still irritate many people if doctors or even church-leaders stand up and protest aginst official government policy. Those who confuse moral integrity with subservience to authority are naturally taken aback to find civil disobedience practised by representatives of professions which do not normally provoke the power elite in such a way.

It would be silly, however, if we allowed ourselves to be pushed back onto the defensive in this discussion. We do not have to justify doing our ultimate medical and ethical duty in the face of the acute and ever-increasing threat of atomic war: we do not have to justify employing the non-violent means at our disposal to make the most effective contribution we can towards preventing the apocalyptic catastrophe. Soon, even those sections of the population which are still hesitant will grasp the fact that by taking more than a verbal stance against cliche thinking about the enemy and against actual armaments policy, by attempting to set a luminous example through our own civil disobedience, we are righly evaluating and just consistently carrying out our responsibility as doctors for the protection of human life and general health.

Why shouldn't we succeed over here in achieving what the American doctors have achieved? When the Pentagon summoned the hospitals over there to make available 50,000 reserve beds for a possible surprise outbreak of war overseas, many groups of doctors - in part supported by the Church - refused to co-operate.
When this resistance was given publicity, it had a dramatic effect on American public opinion, as the sociologist Prof. BIRNBAUM of Georgetown University in Washington has, for example, investigated. BIRNBAUM even names the civil resistance practised by the doctors as one of the prime factors in causing a shift of opinion in the USA in favour of the peace movement. The Americans rightly began to doubt not the moral principles of the doctors involved but the moral principles of their leading politicians. Precisely because it seemed uncustomary in their profession, the action of the doctors was able to stir the masses and to re-inforce their trust in the sense of responsibility which doctors have.

What is ultimately decisive, however, is not the positive effect which the doctors' action had on the reputation of their profession, but the influence which it had on the political thinking of the American public. The boost for the Freeze Movement registered by sociologists is a demonstration that when doctors put up resistance against civil defence and against medical preparations for war they are not pursuing utopian aims, but can have an immediate effect in changing the real world.

The way men think is an important aspect of social reality. Changes in human thinking on a mass scale can deprive the nuclear arms policy of the basic motivation on which it ultimately depends - despite the economic, technological, military and bureaucratic impulses described by FRANK BARNABY.
Those in the know believe that the Freeze proposal would already win a majority in the American Congress. The forthcoming pastoral letter of the Catholic bishops, which is expected to contain a radical moral condemnation not only of the employment of atomic weapons but also of the threat such weapons embody, should give the movement further impetus.

As far as we Germams are concerned, we can undoubtedly feel encouraged by the fact that our "FRANKFURT DECLARATION", which contains a fundamental refusal to take part in any medical preparations for war, is receiving wider and wider support. This declaration, incidentally, has been rendered into English by ROBERT J. LIFTON and JUDITH E. LIPTON and has been called "A NEW PHYSICIAN'S OATH". This oath reads:

"As a physician, I recognise that the only effective medical reposnse to nuclear war is prevention. I believe that medical preparations for nuclear war increase its likelihood by strengthening the illusions of protection, survival and recovery. Such measures promote the acceptability of a catastrophe which I will not accept.

As a matter of individual conscience, I will refuse to participate in any medical preparations for nuclear war.

I affirm my duty and willingness to provide care in all medical emergencies to the best of my ability.

I commit myself to applying my medical knowledge and skills for the preservation of human life, and particularly the prevention of nuclear war".
Some time ago, there were already more than 3,000 German doctors who, while fully accepting their duties in the field of emergency medicine, had nevertheless publicly declared that they would not take part in any instruction or further training in war medicine camouflaged as disaster medicine, but that they were prepared, on the other hand, to devote all their efforts to helping us prevent

a war. Their reasoning is the same as that of their American colleagues who resisted the Pentagon's reserve bed programme: every preparatory measure which takes as its starting point the possibility of a war in Europe indirectly increases men's readiness to accept something which must at all costs be prevented.

"Our only chance", said ALVA MYRDAL, the winner of the Nobel Peace Prize, recently, "is the pressure of public opinion on politicians and, through them, on the atomic powers".

Our contribution towards ensuring that this chance can be taken must be to arouse the public by practising civil disobedience in our medical field.

In the Federal Republic of Germany, the spreading of medical involvement in line with the FRANKFURT DECLARATION has been taken care of by various pressure groups of doctors in a number of towns. The doctors who join in learn that the doctors' movement is not something where one turns up, listens, sometimes takes part in the discussion and puts one's signature to some piece of paper or other. The movement is only as valuable as the attitudes and actions of each individual member. It is only as valuable as what each does as a person and, if at all possible, with the help of a pressure group into the bargain; as valuable as what he does at his place of work and in the public forum; as valuable as the creative ideas he comes up with; as valuable as the solidarity he is prepared to show; and as valuable, not least, as his courage not simply to talk for peace but to battle for it.

CHAIRMAN'S CLOSING REMARKS

Sir Douglas Black: Prof. Richter's paper so full of expertise enthusiasm and sincerity emphasises three important aspects of the physician's role in responding to the threat of nuclear war.

We have a very important continuing role in keeping before the public the appalling scale of disaster that any nuclear war would cause. At one point Prof. Richter suggested, that politicians are well aware of that particular danger, but I am not sure that they're emotionally entirely aware of it because of the denial mechanism from whcih politicians are by no means free. If one wants more concrete evidence than just the existence of the denial phenomenon then one has only to look at the concept of limited war which is one of the most dangerous ones in the world. A further example of denial would be the attitude of politicians towards civil defence and again I agree entirely with what Professor Richter has just said about it. There should be among medical men and other health workers some considerable knowledge of the effects of radiation. For some time at least we may still be dependent on nuclear energy, but that's a completely different problem, therefore we must not fail to know something about radiation effects but not in any context which pretends to be a safeguard against nuclear war beacause that's a frank impossibility.

Our second important role as physicians is to emphasise the psychological aspects of living under the threat of nuclear war. This stress must effect both those concerned directly with nuclear weapons which must be thoroughly bad, and the general population from the most tender age, as shown in that very moving video tape of Dr. Chivian's.

The third role of physicians and other health workers is that it seems to be very much easier for us to get together across national and ideological frontiers, than it is certainly for politicians. I have taken part myself in the discussion group at the World Health Organisation and there there's obvious and common concern among American physicians, Russian physicians and physicians from the third world to get a process of disarmament of all types firmly under way and I hope that strongly succeeds.

Now in conclusion I want to read a quotation from the Duke of Wellington. I know this is going far back, but this is something he said from Waterloo and I should like you to take this away with you and think how much more strongly he could say it after a nuclear war, which I am sure we all pray will never happen. What he said was:-

> "The next greatest misfortune to losing a battle is to gain such a victory as this".

SMALL GROUP

DISCUSSIONS

Biographical Notes of Group Leaders:

Dr. Stephen Farrow	Senior Lecturer, Department of Epidemiology and Community Medicine, Welsh National School of Medicine.
Anita Davies	Senior Officer - Royal College of Nursing, Ty Maeth, King George V Drive East, Cardiff.
Tom Horlick-Jones	Physics Research Worker, Coastal Research Unit Polytechnic of Wales, Convener in Wales of Scientists Against Nuclear Arms.
Dr. James Thompson	Senior Lecturer in Psychology, Middlesex Hospital Medical School, London.
Jurgen Wehmeier	Teacher, Peace Studies Curriculum, Atlantic College, South Glamorgan.
Alan Taman	Medical Journalist, Medical Campaign Against Nuclear Weapons, Birmingham.
Dr. Alice Stewart	Senior Research Fellow, Department of Social Medicine, Birmingham University.
Gordon Watkins	County Secretary, South Glamorgan County Council.
Prof. Martin Albrow	Professor of Sociological Theory, University College, Cardiff; Editor of 'Sociology'.
Dr. Michael Macpherson	Senior Registrar in Medicine, Welsh National School of Medicine.

MEDICAL STUDENTS

Stephen Farrow

The discussion focussed on medical education and the role of the Medical Campaign in relation to medical students. There was a brief summary of existing curricula and it was clear that the programme at Harvard had no equal in the United Kingdom. What they had achieved was a multidisciplinary twelve week elective course of lectures. This was well supported by senior staff and students and covered a wide range of topics on the medical consequences of nuclear war. In the United Kingdom, there is some presentation of similar material usually from a Community Medicine Department. In these cases the rationale is that of 'prevention' or 'health planning in relation to major disasters'. Teaching varies from lectures to small group project work. Occasionally lectures might be given from other departments on for example, radiation hazards but this was extremely variable. The general reaction of medical students to the formalisation of teaching on nuclear war was likely to be one of mild disinterest. Neither 'prevention' nor 'disaster planning' was high on their personal agenda nor were these approaches thought likely to be of great importance to the medical school as a whole.

Medical students were equally uncertain about the role of the Medical Campaign. There was some debate concerning the strategy of providing information about the medical consequences and the risks of nuclear war. This belief in the logical rational method of behaviour change was certainly traditional but was not thought likely to be effective. The medical school training had much to do with attitude and behaviour change but students were likely to be influenced to some extent by the enthusiasm and commitment of their teachers. They were looking for an attitude of caring which encompassed the major social problems of the day. It was worth quoting Sir Richard Doll's 1982 Harvean Oratory which saw health more threatened by the risk of nuclear war than by any other single agent. Students were likely to be impressed by the recognition of larger numbers of their clinical teachers that they had a responsibility to become involved in the nuclear weapons

debate. While the number of Medical Campaign members remained modest, students might well take the view that the subject was of modest importance.

One point of confusion was the title 'Campaign' which suggested an active participation amongst the membership with a desire to change the status quo. There was some debate as to the campaigning nature of an organisation which wished to act as a reference agency and source of information. Medical students, famous for their indifference towards radical politics, were confused by the nature of the Campaign which failed to give a clear lead regarding what action should be taken; preferring to leave such decisions to the individual. In conclusion medical students considered that their own interests would best be served by the development of an identifiable Medical Student Group of Medical Campaign members.

They were looking for increasing relevance of the curriculum to the problems of twentieth century life. The traditional topics and teaching methods were being questioned from both sides. It was time for doctors to transcend national bounderies and political differences and to adopt educational strategies that would develop the role of health professionals in protecting human life.

NURSES

Anita Davies

The initial discussion centred around difficulties that had been experienced in obtaining study leave to attend the conference. The attitude of management, in many cases, had been obstructive. Attendance at such a gathering was seen to be political and certainly nothing to do with the nursing profession or nursing practice. One charge nurse reported his "banning" from the local school grouping, in repect of his role as a staff representative, the reason being his known involvement in the nurses campaign against nuclear weapons. The conclusion was drawn, by the group, that nurse managers generally found the subject embarassing and, therefore, avoided it.

Discussion then turned to the role of nurses, as health care professionals, in promoting the anti-nuclear campaign. The view was expressed that members of the public viewed nurses as a group they could trust and rely upon. They, therfore expected nurses to be able to do something positive about the nuclear threat.

The general feelings expressed were that prevention of nuclear war must be the priority. A small minority, however, felt that it would be worth while exploring the possibility of administering care to survivors. This was rapidly dispensed with, assisted by comments from a local government employee who left the group in no doubt as to their inability to carry out such activities; not least, due to the provisions already laid down, aimed at keeping personnel out of the 'disaster area'.

The group then reaffirmed their view that efforts must concentrate on nuclear disarmament and prevention. As a whole the group felt that they were 'the converted'; most individuals already participating in some formal anti-nuclear group. This posed a problem:- How to communicate with others and appraise them of the facts related to the effects of nuclear war. Several members offered ideas and reported on their own activities and methods, as well as their levels of success.

At the end of the session one was left with the feeling that more time would have produced positive proposals and decisions. However, the exchange of ideas, had drawn individuals together and strengthened their resolve to continue to make every effort to bring the debate into the arena of the N.H.S. One proposal, aimed at doing this, was to approach the statutory body for nurses with a view to incorporating some teaching into the basic syllabus of training for nurses. In the meantime, links have been forged which will lead to support to the campaign as a whole. This can only be to the good.

SCIENTISTS: FOR OR AGAINST NUCLEAR WEAPONS

Tom Horlick-Jones.

(Jointly chaired with Philip Steadman).

It is interesting to peruse the list of participants for this workshop; an extremely wide range of organisations were represented, from ASTMS and the labour party to TACT (Tories Against Cruise and Trident), together with the Royal Society of Chemistry, the British Society for Social Responsibility in Science and others. Both chairpersons were representatives of SANA (Scientists Against Nuclear Arms), an independent organisation, set up in 1981, existing to supply accurate and detailed information on matters related to weapons of mass destruction.We were asked to address ourselves to the question: 'are Scientists for or against nuclear weapons?' perhaps not a very useful question, since taken at face value it fails to understand the problems entailed in any analysis of the roles played by scientists in creating these devices. Presumably it is not controversial to suppose that by far most scientists are not in favour of nuclear weapons. It is generally agreed that the world would be better without them, however possession is justified on strategic grounds. The work of the practising scientists and the development of nuclear weapons was discussed. This was followed by suggestions of activities that concerned scientists could pursue.

To begin with, it is convenient to divide the research in which scientists are engaged into three categories: (i) academic, (ii) industrial, (iii) Government. Category (iii) includes establishments such as Aldermaston, Harwell and so on. The development of nuclear weapons does not stop here however, a vast amount of work is done in the academic and industrial laboratories.

Science in the west is still largely dominated by the 'Ivory Tower' culture of 'pure research'. Scientists are never encouraged to consider the morality of their work; yet a 1974 report quoted sixty five British colleges and universities who were receiving direct funds from military sources including the

Ministry of Defence and the U.S. Department of Defence. In the private sector of British industry, lucrative Government defence contracts provide high profits at low risk. Often this reaearch is not overtly military and can be thought of as 'pure'. A final ingredient completes the picture; it has been estimated that only 1 or 2% of government military research expenditure (11,000 million total in 1980-81 is subject to House of Commons scrutiny.

The combination of vested interest, bureaucracy and ideology results in the so called 'Military-Industrial-Academic Complex' or, as Ryle refers to it, 'The Steel Triangle'. Clearly the research and development of nuclear weapons is embedded in this Gordian knot of complexity, a structure of immense inertia.

Approaches to change will have to consider the vital issue of job security. At present this is not provided by the capital intensive arms industries, with 250,000 redundancies in the last four years. Lucas Aerospace-type alternative production plans must be devised. This requires the active participation of scientists and technologists working in these industries. Research indicates that a switch to an alternative defence perspective is possible, however much work remains to be done.

As Scientists we have a responsibility to challenge the existing order, to participate in public debate and use our skills to benefit humanity.

PSYCHOLOGISTS

Dr. James Thompson

Discussion began with a brief resume of the work of Psychologists for Peace. This included the evaluation of the effectiveness of peace campaign publicity; research on human fallibility and nuclear weapons, other topics such as the psychological assumption behind civil defence and a letter writing campaign focussed on fairly accessible fellow professionals.

Psychologists noted the wide range of reactions which people show to the nuclear issue, particularly aggression when their coping

strategies are challenged. What was needed was a more detailed investigation into public attitudes. Suggestions were also made as to the best ways of getting people to change their attitudes. Some people stressed the need for concerted action and persuasion on key decision makers, and there was general agreement that peace actions had to be encouraged and maintained in order to overcome the feelings of helplessness experienced by so many passive members of the population.

One active step was to join the 'Psychologists for Peace'.

TEACHERS

Jurgen Wehmeier

Discussion centred on the development of peace studies courses at primary and secondary school and in further education. It also addressed the question of the role of teachers who were active in the Peace Movement. Further information on this workshop and on subsequent developments can be obtained from the chairman or from the editors.

THE CHURCH

Chaired by Reverend Bob Morgan

Rapporteur: Mr. Alan Taman

Revd. Morgan opened up discussions by posing several questions gleaned from
The Church and the Bomb:

1. Do we need to discuss the morality of nuclear weapons; what should the Church or christian response be?

2. Everyone believed in the preference of multilateral disarmament, but this belief has not prevented a massive arms build-up. How do we make a stand as a Church; how do we make our presence felt in the direction of peace?

During the discussion, which took these questions as a starting

point, the central theme was the apparent dilemma between adopting a unilateralist, 'absolutist' stance and the justifiable need for christians to defend themselves against an armed aggressor. On a practical level, some felt that by accepting unilateralism it would be illogical to remove weapons from Britain and rely on American protection; that although the concept of deterrence was difficult to condone morally, it was widely believed that it would not be practicable for Britain to disarm unilaterally if NATO were to remain workable. Hence, although the absolutist position was praiseworthy, the practical problem of achieving disarmament still needed addressing, and the Church should be willing to take a lead in this.

The issue of the morality of deterrence was then raised - to what extent could the threat to use nuclear weapons be upheld in a Christian framework? Although there were many Christian views, there could be said to be only one Christ view: that anyone making a threat was as blameworthy as if they had committed the act. This opened up further discussion on the concept of an absolutist ethic. If we are Christians, we must not kill - this was the pacifist path of total commitment. In answer to the widely held belief of justifiable defence against an aggressor, it was pointed out that although this was an acceptable Christian belief, the use of any nuclear weapon could not be held as consistent with that belief. Owing to the likely numbers of casualties and indiscriminate, widespread destruction likely to arise from the use of even the smallest nuclear weapon, these were an assault on life itself; they were forcing the world to become unsafe, and possession of nuclear weapons could not be accepted morally on the grounds of defence against an aggressor. The related area of Third-World poverty was also mentioned; the expenditure of the Arms race was held to be significantly responsible for this.

In conclusion, it was stated that unilateral disarmament by the UK could herald multilateral disarmament world-wide - the British position was unique. It was felt that Churches of all denominations should unite to address the issue of disarmament and that the resistance to the Peace Movement apparent in the Church was wrong. The cultural conflicts between East and West must be settled if the dangers of nuclear weapons were to be removed, and the Church should act to achieve this settlement. Individual Christians must promote discussion of these issues in their

congregations; in particular, they should ask their churc ministers relevant questions on nuclear weapons and deterrence.

NOTE: This discussion was held before the Church of Englan Synod's decision to reject unilateral disarmament but amend tha rejection to support a 'no- first-use' policy.

HEALTH AND SAFETY

Dr. Alice Stewart

We are often told that there is no danger from nuclear weapons provided the Western Alliance has more of them than the USSR, and that there would be no lessening of radioactivity releases by substituting coal for nuclear power. What is less often stressed is that the possession of nuclear weapons and nuclear power implies significant additions of man-made radiation to natural or background radiation, also a cancer hazard for workers in two industries and a public hazard from weapons testing and surplus radioactivity.

One consequence of the government giving high priority to the two closely related industries is the gross imbalance which now exists between nuclear physics as an academic subject and the branches of science most directly concerned with the development of solar energy. Other consequences are the present uncertainty about the health hazards of radiation workers and the numerous attempts by our National Radiation Protection Board (NPRB) and similar institutions to convince a sceptical public that there is nothing to fear from slow releases of quite large amounts of radioactivity.

When a study of U.S.A. workers in the nuclear weapons industry threatened to disturb official complacency on this score the research team was promptly disbanded and our NRPB seized an early opportunity to describe the work as "statistically flawed and the work of scientists who had lost the respect of their peers". Nevertheless, the managing director of the Tennesse Valley River Authority (which is the U.S. nuclear industry's best customer) recently contributed an article to the Washington Post in which he

said that the nuclear industry will lose all credibility if it persists in blaming its problems on an emotional public and the "the fears of the public - now that we have seen a nuclear reactor self-destruct - are very real".

Therefore, the possibility that the present arms race will end in a nuclear holocaust is not the only reason for making everyone fully aware all the dangers which have followed not so much the discovery by physcists of how to split atoms as the discovery by governments of how to control both the input and output of modern science.

CIVIL DEFENCE

Mr. Gordon Watkins.

(Jointly chaired with Barry Murray)

The contribution which was being made by Local Authorities in providing a civil defence service was discussed under the following three headings:-

(a) The "Civil Defence" duties placed on local authorities by the Civil Defence (Planning) Regulations 1974;

(b) The effectiveness of the exercise of those duties as defences against the effects of nuclear war;

(c) The proposals now being put forward by the Government to improve the effectiveness of local authority based responses to a war situation.

It was first explained and agreed that the expression "Civil Defence" no longer has the same meaning as it possessed during the Second World War when civilian organisations were available in every city and town and in individual streets to undertake air raid precaution, warden and rescue duties which could actually reduce the effects of enemy bombing. People were trained to use sand and stirrup-pumps to put out incendiary bomb fires and to rescue people from buildings damaged by aerial bombardment.

In contrast to that situation, the scenario which is usually adopted for exercise purposes in the present day emergency planning situation makes it clear that there can be no immediate aid for people living within the 50 square miles surronding a nuclear explosion.

The law puts a duty on each county council to make plans for a variety of purposes. The duty does not go any further than the plan stage.

Plans must be made to collect and distribute intelligence on the results of hostile attack; for controlling and co-ordinating resulting necessary action; for instructing and advising the public on the effects of attack and on protective measures to be taken; for billeting and temporary accommodation for the homeless; for emergency sanitation and disposal of refuse and the prevention of disease; for the disposal of human remains; for emergency feeding and the control of food supplies; for repairing or demolishing any properties; and for providing and maintaining any other services essential to the life of the community.

It was the view generally expressed that local authorities had reached varying degrees of effectivenesss in making their statutory plans. It was unanimously accepted that those plans would be of benefit only to those people who, after an enemy attack, were still capable of surviving. The facilites available to local authorites would not be capable of providing real assistance to those persons who were moderately injured but who could not fend for themselves without the assistance of the usual peace-time health services.

The draft Civil Defence (General Local Authority Functions) Regulations 1983 now put forward by the Home Office proposed two things. Firstly they proposed adding to the plan-making duties of local authorities additional plans to cover (a) the evacuation of the civilian population from one part of the country to another and for the receiving areas to provide for the maintenance of evacuees: (b) for public civil defence shelters, perhaps with orders of priority for different classes or persons; (c) for the rescue of persons from damaged buildings; and (d) for securing the participation of voluntary organisations. In addition to those new plans the discussion group also considered the proposed active and

additional duties which would include:-

(a) providing control centres to control and co-ordinate action before, during and after attack;

(b) the training of staff and volunteers;

(c) taking part in training exercises;

(d) surveying any buildings or excavations or land features which may provide shelter;

(e) securing that local authority employees, who are not presently engaged on civil defence duties, become obliged to undertake civil defence training.

In the course of the debate there was an even acceptance that "civil defence" measures could only possibily be employed to assist the able bodied or slightly injured members of the public who happened to be outside the areas contaminated by lethal radiation. Whilst it was accepted that there would be such survivors the debate threw grave doubts on the ability of the civil defence services of local authorities themselves to survive. The general view was that it would be unlikely that any effective organisation would remain which could provide what were considered to be the essential services needed to support life.

SOCIAL SCIENTISTS AND NUCLEAR WEAPONS

Prof. Martin Albrow.

(Jointly chaired with Anthony Ashworth)

The 20 or so social scientists who met at the Conference of MCANW were well aware of how backward their disciplines were in responding to the crisis of nuclear weapons. None of the people who took part in the discussion acknowledged more than preliminary thoughts about the issues from the standpoint of their own discipline, and this was the case even for those who were active campaigners. In fact social scientists would appear to be as vulnerable as the rest of the public to dissociating their own work from any connection with the greatest threat which has ever

faced human beings. We were all impressed by the extent to whi the medical scientists had thought the issues through, and und the impact of that it is scarcely surprising that Tony Ashworth the Department of Sociology in Cardiff set the discussion in tra by arguing that the first need was to establish the extent public knowledge of nuclear weapons, of the threat that they pos and of the likely form of a nuclear war.

Exploring this theme led in a number of directions. It impossible to consider such an issue without recognizing that t control of such knowledge has become a major arena of strugg between opposed social forces and between governments a oppositional movements. Moreover both sides in the nuclear deba work on the assumption that knowledge is related to attitudes. far the tendency has been for governments to conceal informati on weapons, on the effects of nuclear warfare and on the risks war, while the unilateralist has assumed that more knowledge wi support his case. But these are only assumptions, possib generated as much by the endemic desire of governments for secre and opponents for revelation. One important field of resear could very well be an examination of the relation betwe knowledge and attitudes. Presumably some circles of the milita are well informed, but they still support nuclear policies, and is more likely that this support is related not to knowledge much as to a set of values and attitudes which regard the natio the use of force and the necessity for military capability beyond doubt.

We are led then from researching knowledge to consideri attitudes and values. Unless we acknowledge that for some at lea the apocalypse is not unthinkable and that the end of the wor has a long and accepted place within the tradition of Weste thought it will be difficult to appreciate the equanimity wi which some apparently face the ultimate horror. From this poi of view the nuclear disarmament movement needs to examine in so depth the roots of its own support in sets of values and attitud and the contrary roots for its opponents. In this context should be recognized that the repeated insistence by CND that t threat facing mankind is so dire may not have the same resonan with opponents as with supporters. Indeed that very reference m well encourage fear, a reliance on authority, and paradoxically greater trust in our present leaders' wisdom than would otherwi

be the case. Again this is not a matter for premature conclusions on the basis of purely theoretical reasoning, but it is important to identify these possibilites so that research can reveal the basis in values which provides not just the support for CND but also its potential for future recruitment. Thus when John Cox says that basically CND depends on recognizing that nuclear weapons are wrong he may well be tapping a more potent source of support than arguments about the tactical importance of unilateralism as a method of disarmament.

Looked at in this way the question of nuclear disarmament cannot be seen in isolation from the total set of political attitudes and values at any moment of time and hence from the particular set of prevailing circumstances. Even if we are dealing with relatively deep and unchanging attitudes we are also in the middle of rapidly shifting terms of debate. The growth of the nuclear disarmament movement in recent years is intimately connected with shifts in the terms of politics at a global level and with debates on such seemingly unconnected things as law and order and third world development. Just as the strength of CND in the sixties evaporated largely when the Wilson government came to power in 1964 and that particular alliance of forces shifted so we have to be prepared for similar shifts in the future. This makes it all the more important to understand the composition of these forces. Each time the disarmament movement rises and falls the tide is carrying us closer to destruction.

It was mainly sociologists who were engaged in discussing these issues. We didn't have any explicit contributions from economists or political scientists but it would be entirely artificial to leave them out of the discussion. Their contributions to understanding the causes of war are essential with a view to identifying what is different and what is the same in the present situation. I suspect that the economic factors predisposing to war are very similar now to what they have been in the last hundred years, recession, social unrest, military expenditure operating in a vicious spiral and sustaining each other. But I suspect that the political terms are different in the sense that the progress (and what an irony that term is) of military technology has left political leaders with a problem which they cannot meet in the old way. Mass mobilization has been the

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twentieth century way of involving a whole population in resistin
a supposed outside threat. But conscription is no longer
rational war policy. The control over opinion and free expressio
that mass mobilization affords is not as easily at the disposal o
governments. Of course we may well see low level surrogates, suc
as the Falklands war but that does not engage with the 'real
enemy. There may come a point in which repeated use of th
'outside threat' ceases to carry conviction, at which point tha
coming together of people in Eastern and Western Europe on whic
future peace will depend may become a possibility. Socia
research won't bring that situation about but it may help us t
plan more rationally for it.

PSYCHOLOGICAL ASPECTS OF NUCLEAR WAR

PSYCHOLOGICAL ASPECTS OF THE NUCLEAR WAR THREAT

THE DEVELOPMENT OF A RESEARCH AGENDA

Dr. Michael Macpherson

Co-Chairman Professor Horst Richter Dr. Eric Chivian

Rapporteur Alan Taman

PRIORITY RESEARCH AREAS

It was agreed that research was urgently needed in the following areas:-

1. Documentation of people's knowledge about nuclear issues and related international affairs. Finding ways to modify misconceptions e.g. about the protective value of nuclear "deterrence".

2. Stereotyping of foreign peoples as 'enemy'. Inculcation of such stereotypes begins in childhood hence work with our colleagues in education is vital here. The role of news media in stereotype formation and reinforcement.

3. Identifying and finding ways to modify barriers, to change in attitude and action, which inhibit people from becoming active against the nuclear war threat. We need to further assess the psychosocial effects of nuclear war- readiness on people. Human responses to the nuclear war threat have been described as avoidance, denial, apathy, helplessness, displacement activity (e.g. into pre-occupation with work or hobby,) habituation, inability to comprehend (nuclear destructiveness) and psychic numbing. Inappropriate obedience to authority and social embarassment should also be considered. Much wider investigation is needed to explore the nature, range and distribution of human responses to the nuclear war threat.

4. Study by social psychologists of factors causing the selection of aggressive, power seeking individuals as leaders. The phenomena of attitude change in certain political leaders who show signs of breaking out of the blinkered thinking which is leading us to a nuclear holocaust. How can others be persuaded to act similarly?

5. The effects of nuclear war-readiness on children and adolescents. As long ago as 1961 Sybille Escalona using indirect questions to elicit children's fears, from the findings speculated that psychosocial development might be adversely affected by the nuclear war threat. To investigate and demonstrate this will be very difficult but should be attempted. Simple collection of data on children's views of nuclear issues may produce findings which have political influence - but nevertheless this work should begin urgently as a preliminary to possible long-term studies. The work of International Physicians for the Prevention of Nuclear War (IPPNW) to demonstrate the fears of children and adolescents about nuclear destructiveness on film may, particularly if performed in the Eastern bloc as well as the West, have an important role in alerting people to the human cost of continued nuclear war preparation as well as possibly helping to break down stereotypes of foreign peoples and international mistrust. This work, costly, though it is, should be promoted.

6. Resistance of doctors and health care workers to involvement with Medical Campaign against Nuclear Weapons (MCANW) and related groups. What factors are involved and how best can they be mitigated?

7. Direct evaluation of types of information designed to promote action against the nuclear war threat. "How far to horrify".

8. Role simulation of decision making groups, involved, for example in the decision to deploy MX missiles.

DISCUSSION – SOME TOPICS RAISED

Two points were rasied concerning difficulties in carrying out the types of research suggested above. The first was that we should ensure good communication of research results which may be of immediate social significance. Narcissistic, sterile, research activity sould be avoided. A simple point about performing social surveys was that, to avoid accusation of interview bias, volunteers from 'peace groups' should ideally not be used. Although expensive, opinion pollsters or market research organisations should be employed. The need for 'cross-cultural' studies in all areas of research was agreed. The possible benefit in breaking down international barriers may be very great. The "propaganda or research" question caused lively debate. It was agreed that there is no clear dividing line between data which may be used to influence people's minds and research data. There is a need for collection of further information on the way children, adolescents and adults react to the nuclear war threat, as described above. In the psychiatric literature there are very few case reports to suggest that psychopathology may be induced by fear about the possibility of nuclear war. However, this fear is probably an underlying stress in all of our minds and its role in contributing to psychiatric and societal disorders needs to be investigated. All relevant cases should be reported.

CURRENT RESEARCH

At present all work has to be done in the spare time of those involved and on a small scale because of funds for research being limited. Projects initiated by members of Medical Campaign Against Nuclear Weapons (MCANW) and International Physicians for the Prevention of Nuclear war (IPPNW) are already underway. These are:-

(a) Survey of "enemy perceptions" and attitudes to disarmament (contact John Gleisner, MCANW).

(b) Survey designed to elucidate the relevance of the nuclear war threat as an underlying cause of anxiety. (contact John Gleisner or Andy Haines, MCANW).

(c) Children and the nuclear war threat. Cross-cultural studies are planned to involve Eastern bloc countries. (contact Eric Chivian IPPNW)

(d) A survey of people's knowledge about armaments, international affairs, attitudes to war and peace, anxiety about nuclear war-readiness and attempting to probe psychological barriers to action against the threat of nuclear war. (contact Mike Macpherson, MCANW)

(e) Investigation into efficiency of information transmission. (contact James Thompson, MCANW and Psychologists for Peace)

POSTSCRIPT

It seems obvious that many more people must become actively interested in matters related to the prevention of nuclear war, if it is to be avoided. There is evidence that living under the threat of nuclear war causes psychological changes in adults and impairs psycho-social development of young people. A working group at the second congress of the International Physicians for the Prevention of nuclear war in Cambridge, U.K., April '82, stated that research into the psychology of nuclear war-readiness should be started urgently.

Factors which are thought to prevent people from reacting against the threat of mass destruction include ignorance, apathy, helplessness, habituation, avoidance and denial. The relevance and importance of these should be investigated as should the effects of nuclear war-readiness on the psycho- social development of children and adolescents.

As a result of this conference and the workshop on research, the following proposals were put forward:

I To establish an Institute for Psychosocial Research
II To organize regular workshops to stimulate local research and to discuss and disseminate research findings.

The Institute would be multidisciplinary in nature with psychologists, sociologists, psychiatrists, political scientists and an administrative director. The aims of this Institute would be:

a) to promote research in the following topics:-

1. The effects of the nuclear war threat on children and adolescents.
2. Adult knowledge about nuclear weapons; attitudes to their deployment and use.
3. Cognitive and emotional reactions to knowledge of potential extreme destructiveness.
4. Perceptions of foreign peoples in relation to the threat of nuclear war.

5. Human fallibility in controlling the use of nuclear weapons.

6. Psychopathology induced by nuclear war preparations.

b) to act as a reference agency and source of information on psychosocial research.

c) to offer a curriculum to undergraduates on the Psychosocial Costs of Nuclear Developments.

Regional Workshops would concentrate in the initial stages on the stimulation of psychosocial research. A wide variety of different research strategies are required which take advantage of the particular local opportunities. In addition research funds should be secured from various public and private organisations in order to demonstrate the legitimacy of research in this area. Subsequent activities would include dissemination of research findings and implementation of certain results.

This emphasis on research and teaching has led to the setting up of a Medical Education Trust within the Lionel Penrose Trust. The specific objectives are 'to further research into the medical psychological and social causes and effects of violence and group conflict, and to educate or promote the education of doctors, nurses and other persons in these causes and effects'. The establishment of this trust will make possible appeals for covenants and legacies as well as applications to funding bodies previously inaccessible to the Medical Campaign.

It is hoped that this emphasis on research and education will make some contribution towards the prevention of nuclear war. The setting up of an Institute of Psychosocial Research and the Medical Education Trust will make it possible for many individuals to make their own personal contribution to this endeavour.

Further information can be obtaibed from the Medical Campaign Against Nuclear Weapons and the Medical Association for the Prevention of War.

SUGGESTED READING LIST

GENERAL

As Lambs to the Slaughter	Paul Roger, Malcolm Dando, Peter Van der Dungen. Arrow Books 1981. (£1.75)
Thinking it Through: The Plain Man's Guide to the Bomb	Oliver Postage. The Menard Press (90p)
Four minutes to Midnight	Nicholas Humphrey. The Menard Press (£1.00)
Nuclear Nightmares	Nigel Calder. Penguin, 1981. (£1.50)

WEAPONS EFFECTS

The Effects of Nuclear War	Office of Technology Assessment (Congress of the United States), Croom Helm, London, 1980.
The Effects of Nuclear Weapons	US Dept. of Defence and Dept. of Energy, J. Glasstone and P. J. Dolan(eds), Castle House, 1980.
London After the Bomb	O. Green, B. Rubin, N. Turok, P. Webber, G. Wilkinson. Oxford University Press, 1982. (£1.95)
Overkill	John Cox. Penguin

MEDICAL EFFECTS

The Medical Consequences of Nuclear Weapons	MCANW, 1982 (75p)

Last Aid	IPPNW Eds. Chivan. 1983.(£7.40 paperback, £15.80 hardback).

CIVIL DEFENCE

Protect & Survive	HMSO
War Plan UK: The Truth About Civil Defence in Britain	Duncan Campbell. Burnett Books (6.95)

HIROSHIMA

Unforgettable Fire	Edited by the Jampanese Broadcasting Corp. (£4.95)
Hiroshima	John Hersey. Penguin Modern Classics, 1972

ETHICS

The Church and the Bomb	Hodder & Stoughton (£4.50)

ALTERNATIVES

Common Security, Independent Commission on Disarmament and Security Issues	Palme Committee Report. Pan, 1982 (£1.95)
Policy for Peace	Lord Carver
Defence without Offence	Bradford School of Peace Studies, Paper No 8 Frank Barnaby. (£1.50)
Non-Nuclear Military Options for Britain	Bradford school of Peace Studies, Paper No. 6, Dan Smith (80p)

LIST OF ADDRESSES

Anti-Nuclear Campaign (ANC): P.O. Box 216, Sheffield, Yorkshire, S1 1BD.

Architects for Peace: 41 St. James Rd., Sevenoaks, Kent.

Babies Against the Bomb: c/o Tamara Swade, 50b Clevedon Mansions, Lissenden Gardens, London, NW5.

Bertrand Russell Peace Foundation: 45 Gamble St., Nottingham, NG7 4ET.

Campaign Against the Arms Trade: 5 Caledonian Rd., London, N1 9DX.

Campaign Against Militarism: c/o Peace Pledge Union, 6 Endsleigh Street, London. WC1.

Campaign for Nuclear Disarmament (CND): 11 Goodwin St., London, N4 3HQ.

European Nuclear Disarmament Campaign (END): 227 Seven Sisters Rd., London, N4 3HQ.

Families Against the Bomb: 124a Northview Rd., London, N8.

Greenpeace: 36 Graham St., London, N1.

International Physicians for the Prevention of Nuclear War (IPPNW): European Address: c/o Ms. M. Laubli, 84 Alton Rd., London, SW15 4NS.

Journalists Against Nuclear Extermination: c/o Magazine Branch, Acorn House, 314 Grays Inn Rd., London, WC1.

Lawyers Versus the Bomb: 2 Garden Court, Temple, London, EC4.

Liaison Committee of Women's Peace Groups: 25 Elsworthy Rd., London, NW3

Medical Association for the Prevention of War (MAPW): 576 Somerton Rd., London NW2.

Medical Campaign Against Nuclear Weapons (MCANW): 7 Tenison Rd., Cambridge, National Peace Council (co-ordinating Body for most British Peace Organisations): 29 Great James St., London, WC1N 3ES.

Oxford Mothers for Nuclear Disarmament: c/o 11 Warnborough Rd., Oxford.

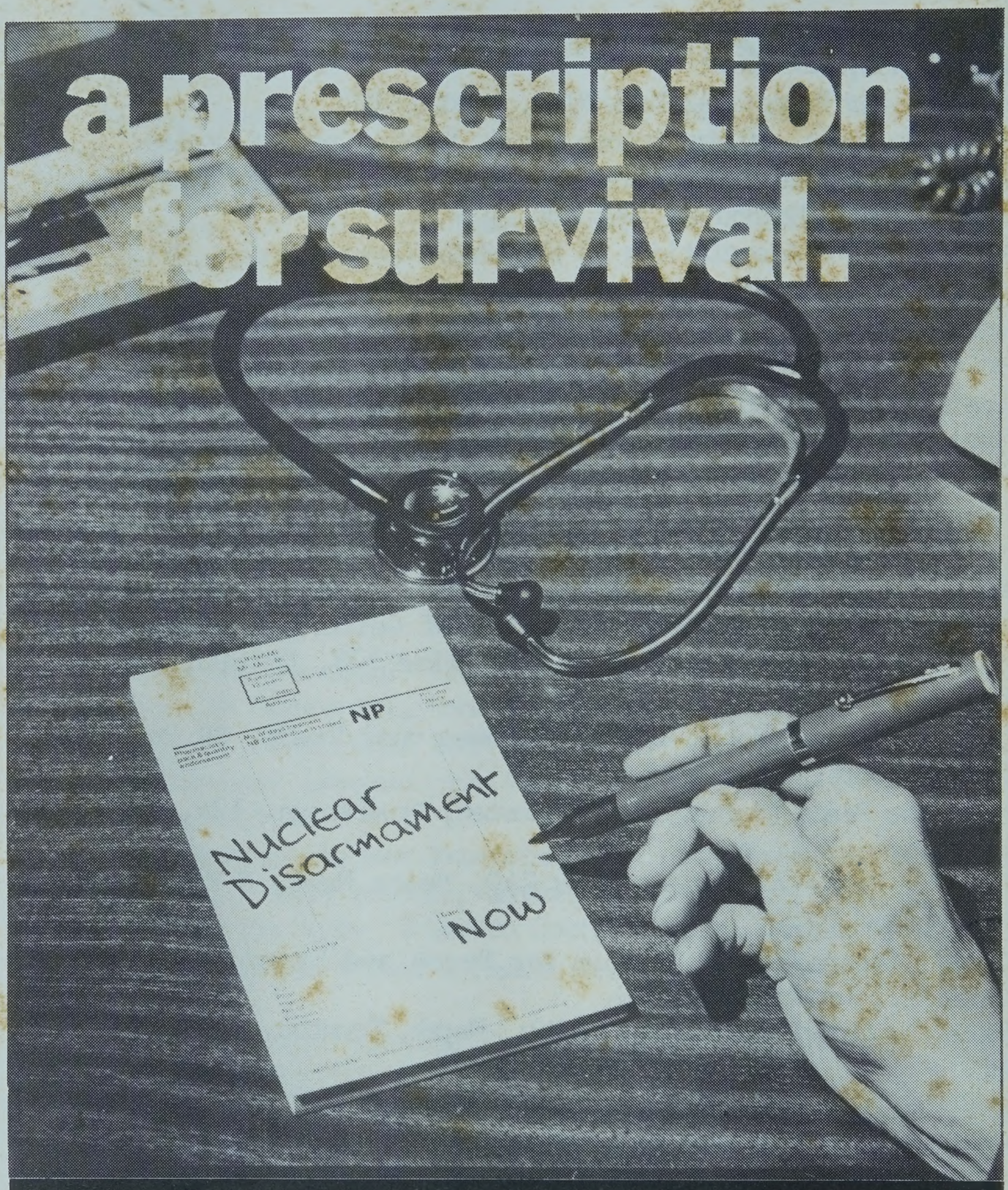
Peace Tax Campaign: 26 Thurlow Rd., Leicester, LE2 1YE.

Psychologists for Peace: 114 Middleton Rd., London, E8 4LP.

Quaker Peace and Service (QPS): Friends House, Euston Rd., London, NW1.

Radiation and Health Information Service: 9 Marion Close, Cambridge, CB3 0HN. Scientists Against Nuclear Arms (SANA): 11 Chapel St., Woburn Sands, Milton Keynes.

Socialist Environment and Resources Association (SERA): 9 Poland St., London, W1V 3DG.
Teachers for Peace: 42 York Rise, London, NW5.
The Peace Shop: 56 Mackintosh Place, Roath, Cardiff, Wales.
The Scottish Campaign to Resist the Atomic Menace (SCRAM): 30 Frederick St., Edinburgh, EH2 2JR.
United Nations Association: 3 Whitehall Court, London, SW1.
University of Bradford School of Peace Studies, Bradford, BD7 1DP.
Womens Peace Camp: RAF Waddington, Lincoln, Lincolnshire.
Womens Peace Camp: USAF Greenham Common, Newbury, Berkshire.
Women Oppose the Nuclear Threat (WONT): National: Box 600 c/o Peace News, 8 Elm Avenue, Nottingham.
Women's Pentagon Action (U.S.A): 339 Lafayette St., New York, N.Y. 10012.
Women for Life on Earth (G.B): (WFLOE) 2 St. Edmunds Cottages, Bove Town, Glastonbury, Somerset.
Women for Peace (Federal Republic of Germany): Frauen fur Frieden, c/o Eva Quistorp, Bundesallee 139, D-1000, Berlin 41.
Women for Peace (Netherlands): Vrouwen voor Vrede, PB 963, 3800 AZ Amersfoort, Netherlands.
Women for Peace (Norway): c/o Romsted, Trudranqun. 12A, 1342 JAR Norway.
Women's Peace Alliance: Box 240, Peace News, 8 Elm Avenue, Nottingham.
Women's International League for Peace and Freedom: 29 Great James St., London, WC1N 3ES.
Women for World Disarmament (UNA): North, Taunton, Somerset, TA3 6HL.
Women's Party for Survival (now Women's Action for Nuclear Disarmament): P.O. Box B, Arlington, MA02174, U.S.A.
War Resisters International: 55 Daws St., London, SE17 1EL.
World Disarmament Campaign: 21 Little Russell St., London, WC1.



MEDICAL CAMPAIGN AGAINST NUCLEAR WEAPONS

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7 Tenison Road
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Tel: 0223 313 828

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Oxford OX4 1LN
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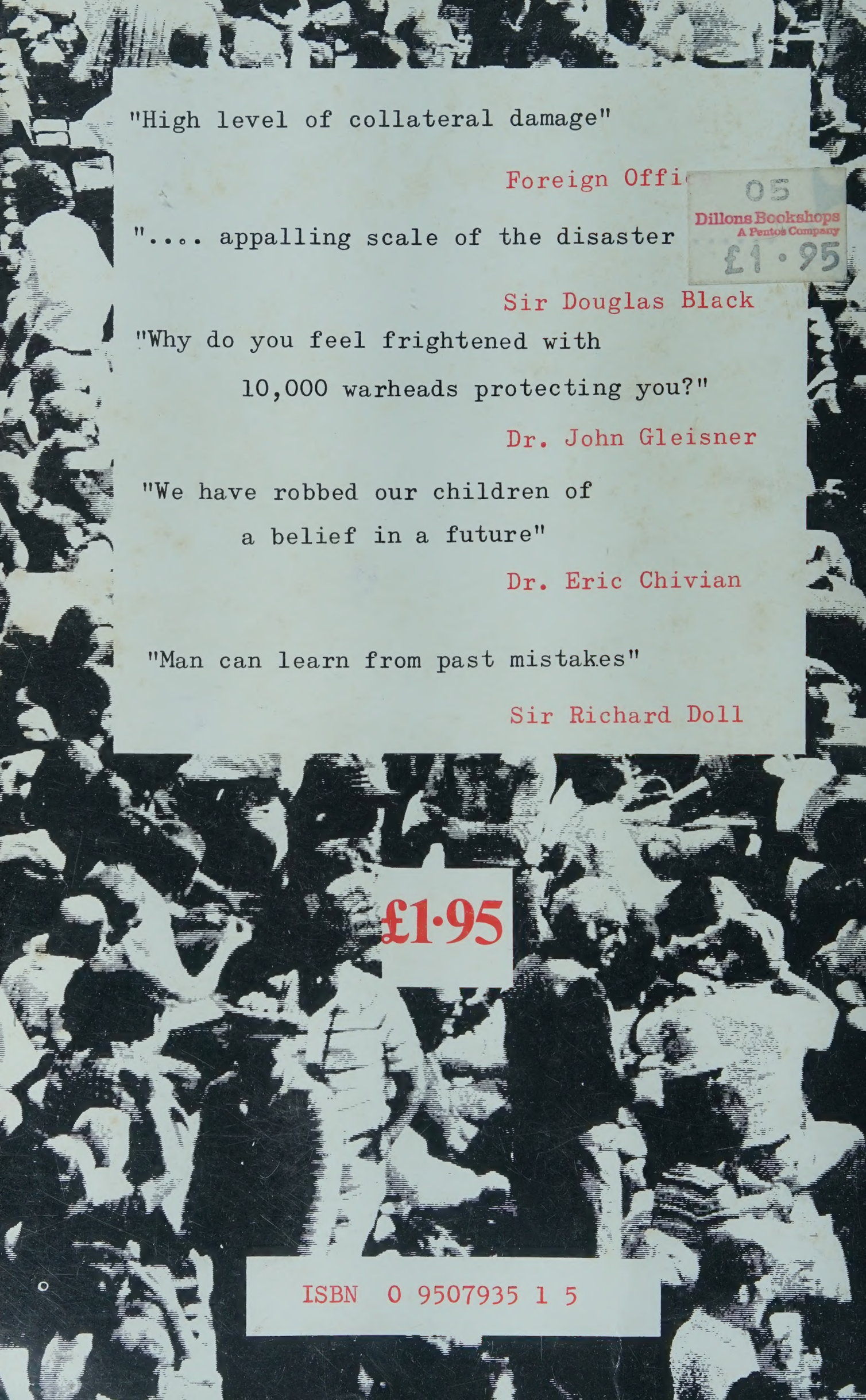

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